

United States /
Circuit Court of Appeals

For the Ninth Circuit.

COOLING TOWER COMPANY, INC., a Corporation,

Appellant and Cross-Appellee,

vs.

C. F. BRAUN & COMPANY, a Corporation,
Appellee and Cross-Appellant.

Transcript of Record.

Upon Appeal and Cross-Appeal from the Southern
Division of the United States District Court
for the Northern District of California,
Second Division.

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F. O. MONCKTON,
CLERK

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[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in *italic*; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in *italic* the two words between which the omission seems to occur.]

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NAMES AND ADDRESSES OF ATTORNEYS
OF RECORD.

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San Francisco, Calif.,
Attorney for Plaintiff.

CHARLES E. TOWNSEND, Esq., Crocker Bldg.,
San Francisco, Calif.,
Attorney for Defendant.

In the Southern Division of the United States Dis-
trict Court, Northern District of California,
Second Division.

IN EQUITY—923.

COOLING TOWER COMPANY, INC., a Cor-
poration,

Plaintiff,

against

C. F. BRAUN & CO., a Corporation,

Defendant.

COMPLAINT IN EQUITY.

Plaintiff for its bill of complaint alleges:

1. That it is and was at all the times herein men-
tioned a corporation organized and existing under
and by virtue of the laws of the State of New
York and a citizen of said state, having its prin-
cipal place of business in the city of New York,
county of New York, in the Southern District of
New York.

2. That defendant was at all the times herein mentioned a corporation organized and existing under and by virtue of the laws of the State of California, having its principal place of business in the city and county of San Francisco, Northern District of California, Southern Division, at which place the acts of infringement hereinafter complained of, were committed.

3. That prior to May 24th, 1911, Barton H. Coffey, being within the meaning of the Patent Laws of the United States of America, the inventor of certain new and useful devices for cooling liquids and being entitled to a patent thereon under the provisions of said patent laws, duly filed his application for letters patent on said improvements in the United States Patent Office and on the 28th day of November, 1911, all of the requirements of the Patent Office [1*] of the United States, then in force having been complied with and Barton H. Coffey having prior to November 28, 1911, duly assigned his entire right, title and interest in and to the letters patent to be issued for said improvements to the Mitchell-Tappen Company, a corporation of the State of New York, letters patent of the United States were granted on said application to Mitchell-Tappen Company, a corporation of New York, bearing No. 1,010,020 and thereafter by deed of assignment duly executed and recorded in the United States Patent Office, the said letters patent No. 1,010,020 and all right, title and interest therein and thereunder,

*Page-number appearing at foot of page of original certified Transcript of Record.

together with all rights, to back damages and profits due or accrued arising out of past infringements of said letters patent and the right to suit to recover the same, were by assignment in writing, sold, assigned and transferred to plaintiff and by virtue thereof this plaintiff became and now is the sole and exclusive owner of all of the said rights and privileges and exclusively entitled to maintain this suit.

4. That mechanisms containing the said invention have been made, used and sold by plaintiff in the United States in great numbers and plaintiff has expended large sums of money in perfecting the said patented invention.

5. That the said defendant has within six years last past, in the Southern District of California and elsewhere in the United States of America, made, used and sold and is now making, using and selling devices for cooling liquids in infringement of said letters patent and the claims thereof without the license or consent of this plaintiff and threatens to continue so to do and is advertising the same for use and sale, and is distributing circulars in [2] which he pretends to be the owner thereof and in disregard and violation of the rights of the plaintiff.

6. That the defendant was duly notified by this plaintiff of plaintiff's rights under said letters patent and of his infringement, and was requested to desist therefrom, but the defendant has ignored said notices and has continued his said cause of infringement with-

out right to the great damage of this plaintiff.

WHEREFORE, the plaintiff prays:

(a) For process requiring the defendant to answer this bill of complaint.

(b) For an injunction, both provisional and perpetual, enjoining and restraining the defendant, his servants, attorneys and workmen and each and every one of them from infringement of plaintiff's said letters patent and the claims thereof.

(c) That the defendant be required to account for and pay to this plaintiff the profits derived by said defendant from his said infringements and the damages suffered by this plaintiff thereby and the costs of this suit and that said damages be trebled.

(d) For such other or further relief as the circumstances of this case require.

EDWARD A. O'BRIEN,

Solicitors for Plaintiff.

ANDREW FOULDS, Jr.,

Of Counsel. [3]

United States of America, Southern District of
New York.

State of New York,
County of New York,—ss.

A. Bonnell Tappen, on this 29th day of June, 1922, before me personally appeared A. Bonnell Tappen, president of the Cooling Tower Company, Inc., the above-named plaintiff, who being by me first duly sworn, deposes and says that he has read the foregoing bill of complaint and knows the con-

tents thereof and that the same is true of his own knowledge except as to the matters therein stated to be alleged upon information and belief, and as to those matters he believes it to be true, and that he believes Barton H. Coffey to be the true, original and sole inventor of the infringement described and complained in the letters patent referred to in said bill of complaint.

A. BONNELL TAPPEN.

[Seal] HARRY J. NEUSCHAFER,

Notary Public, Kings Co. No. 129. Certificate filed in Kings Co. Reg. Office No. 3052. County Clerk's Office, New York Co., No. 147, N. Y. Co. Reg. Office No. 3109. Queens County Clerk's Office No. 456.

Term expires March 30, 1923.

[Endorsed]: Filed Dec. 22, 1922. W. B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [4]

(Title of Court and Cause.)

ANSWER OF DEFENDANT.

Now comes C. F. Braun & Co., defendant above-named, and answering the bill of complaint filed herein by plaintiff above named, admits, denies and alleges as follows:

I.

Answering paragraph 1 of said bill of complaint, defendant alleges that it is without knowledge of the several allegations in said paragraph, and

therefore, leaves plaintiff to make such proof thereof as it may be advised.

II.

Answering paragraph 2 of said bill of complaint, defendant admits that it is a corporation organized and existing under and by virtue of the laws of the State of California, denies that it has a place of business in the city and county of San Francisco, Northern Judicial District of California, and denying that it has committed any act of infringement, as alleged in said bill of complaint, within said Northern Judicial District of California, or at any other point or place, or that it has in any manner or form, at any time or at any place, infringed upon any rights of plaintiff under letters patent No. 1,010,020, as alleged in said Bill of Complaint.

III.

Answering paragraph 3 of said bill of complaint, defendant denies that prior to the 24th day of May, 1911, or at any other time, or at all, one Barton H. Coffey was, within the meaning of the patent laws of the United States, or at all, the inventor of a certain new and useful or any device for cooling liquids, and denies that said Barton H. Coffey was entitled to a patent thereon under the provision of said patent laws, and is not informed, except by the bill of complaint, whether or not upon said date, said Barton H. Coffey did duly, or otherwise, file [5] in the Patent Office of the United States, his application for letters patent for said alleged invention; but admits that

on the 28th day of November, 1911, letters patent of the United States, No. 1,010,020, were granted or issued to Mitchell-Tappen Company; defendant not being advised except by the allegation of said bill of complaint, whether the said Mitchell-Tappen Company is, or was, a corporation of New York, leaves to plaintiff herein to make such proof thereof as it may deem advisable; and defendant further denies that said Barton H. Coffey did on, or prior to November 29th, 1911, or at any other time, duly, or otherwise, assign his entire or any right, title and interest in and to said letters patent No. 1,010,020, or to the alleged invention, or to any application made for letters patent, to the Mitchell-Tappen Company, and defendant denies further that thereafter, or at any time, by deed of assignment duly executed and recorded in the United States Patent Office, the said letters patent No. 1,010,020, and all, or any right, title or interest therein or thereunder, together with all, or any, rights to back damages and profits, or to any damages or profits, due or accrued arising out of past infringement of said letters patent, and that the right to sue to recover the same were by assignment in writing, or in any other manner, sold, assigned and/or transferred to plaintiff herein, and denies that by virtue of any alleged sale, assignment or transfer, set forth in said bill of complaint, the plaintiff herein became, or now is, the sole and exclusive owner, or any owner, of all, or any, rights or privileges under said letters patent, or that the said plaintiff is exclu-

sively entitled, or in any manner entitled, to maintain this suit.

IV.

Answering paragraph 4 of said bill of complaint, defendant denies that mechanisms or devices containing the said alleged invention have been made, used or sold by plaintiff in the United States or elsewhere, in great numbers, or in any numbers, and denies that plaintiff has expended large, or any, sums of money in perfecting the said device, or any device, alleged to [6] be patented under letters patent No. 1,010,020.

V.

Answering paragraph 5 of said bill of complaint, defendant denies that within the six (6) years last past, or at any other time, in the Southern District of California, or elsewhere in the United States of America, the defendant has made, used, and/or sold, and/or is now making, using, and/or selling any device or devices for cooling liquids, in infringement of the said letters patent, or any, or all of the claims thereof, without the license or consent of the plaintiff herein, and defendant further denies that it threatens to continue, or will continue, so to do, and defendant further denies that it is advertising, or ever has advertised, without the license or consent of plaintiff, device or devices for use and sale and/or sale, in infringement of any alleged rights, alleged to be secured to plaintiff herein by said letters patent No. 1,010,020; and defendant denies that it is distributing, or has caused to be distributed, directly or indi-

rectly, circulars or other advertising matter in which it pretends to be the owner of said device, alleged to be patented by said letters patent No. 1,010,020, or of any rights thereunder, in disregard or violation of any alleged rights of plaintiff herein; but on the contrary defendant's towers are of an entirely different design, construction and principle, and are built and sold under defendant's independent patents.

VI.

Answering paragraph 6 of said bill of complaint, defendant denies that it was duly, or otherwise, notified by the plaintiff in writing, or otherwise, of defendant's said alleged act, or acts, of infringement, and denies that plaintiff has requested defendant to desist from any alleged further infringement of said alleged letters patent, or any of the claims thereof, and therefore, denies that defendant has ignored any such notices, or that he has directly or indirectly continued said infringement, or any infringement, of the rights of the plaintiff under said letters patent No. 1,010,020, or that he has infringed said alleged letters patent, or any of the [7] claims thereof, at any time or place, or in any manner whatsoever.

VII.

And for further and separate defense, defendant alleges that by reason of the state of prior art existing at the time of said alleged invention by said Barton H. Coffey of the device, or devices, alleged to be patented in and by said alleged letters patent No. 1,010,020, the said device, or devices,

was not an invention and did not require an exercise of the inventive faculties for its production, and was not patentable, and for that reason said alleged letters patent No. 1,010,020, are null, void and of no effect.

VIII.

And for a further and separate defense, defendant alleges that the said Barton H. Coffey was not the original or first or sole or any inventor or discoverer of the alleged invention, alleged to be patented in and by said letters patent No. 1,010,020, or any, or all, of the claims thereof, or of any material or substantial part thereof, but, prior to the alleged invention thereof by the said Barton H. Coffey, and more than two years prior to the filing of the application for said letters patent, the said alleged invention and every material and substantial part thereof, had been shown, described and patented in and by each of the following letters patent of the United States of America, and has been invented by each of the patentees named in each of said letters patent, and each of said patentees is the first and original inventor thereof, and, at all times, was using reasonable diligence in adapting and perfecting same, and the respective places of residence of said patentees are, as defendant is informed and believes, respectively set forth in said letters patent to wit:

No.	Date	Patentee
104,798	June 6, 1870	Vander Weyde
107,850	Oct. 4, 1870	Anderson
140,680	July 8, 1873	Cooper
278,986	June 5, 1883	Luck [8]
303,334	Aug. 12, 1884	Southwick
395,691	Jan. 8, 1889	Carlisle
430,881	June 24, 1890	Popper
444,558	Jan. 13, 1891	Klein
463,702	Nov. 24, 1891	Mills
477,755	June 28, 1892	Hanisch
503,395	Aug. 15, 1893	Wood et al
520,994	June 5, 1894	Kessler
544,204	Aug. 6, 1895	Andrews
594,440	Nov. 30, 1897	Stocker
621,718	Mar. 21, 1899	Seymour
649,573	May 15, 1900	Fischer et al
661,192	Nov. 6, 1900	Ostendorff
670,486	Mar. 26, 1901	Summers
683,933	Oct. 8, 1901	Halsall
693,625	Feb. 18, 1902	Schmidt
697,160	Apr. 8, 1902	Ostendorff
700,990	May 27, 1902	Stocker
710,857	Oct. 7, 1902	Griesser
736,087	Aug. 11, 1903	Graham
772,780	Oct. 18, 1904	Burhorn
808,050	Dec. 19, 1905	Hanswirth
821,561	May 22, 1906	Wheeler, et al
836,702	Nov. 27, 1906	Ostendorff
844,336	Feb. 19, 1907	Doherty
899,665	Sept. 29, 1908	Gould
927,766	July 13, 1909	Bauer

No.	Date.	Patentee.
961,100	June 14, 1910	Burhorn
902,875	Nov. 3, 1908	Hart
965,117	July 19, 1910	Morison
965,248	July 26, 1910	Steinbart
973,163	Oct. 18, 1910	Burhorn
984,660	Feb. 21, 1911	Hass
1,027,184	May 21, 1912	Coffey
	Filed Feb. 24, 1910 [9]	
1,040,875	Oct. 8, 1912	Burhorn
	Filed Feb. 6, 1911	

FRENCH PATENT.

359,426	Mar. 26, 1906	Burdon
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ENGLISH PATENTS.

16,664	Aug. 16, 1899	Overhoff
21,711	Sept. 23, 1909	Pownall
25,449	Nov. 12, 1906	Hebbo

—and in addition to the above listed prior patents, defendant believes that there are many others, of which it is not at this time advised, and prays leave to set same up in an amended answer at a later date, when the same become known to defendant.

IX.

As a further, separate and special defense, defendant alleges as special matter that the alleged invention attempted to be patented by said letters patent No. 1,010,020, was described in various printed publications prior to the supposed invention or discovery thereof by said Barton H. Coffey, and more than two years prior to his application for letters patent therefor, but the

name of such publication, or publications, and the name, or names, and addresses of the respective publishers are unknown to defendant at this time, and defendant prays leave to set the same up by amendment to this answer at a later date, when the necessary information is obtained.

X.

And as a further, separate and special defense, the defendant alleges as special matter that the alleged invention, attempted to be patented in letters patent No. 1,010,020, and all of the subject matter thereof, were known to and in open, notorious, public use by others than the said Barton H. Coffey in the United States, prior to any alleged invention or discovery by the said Barton H. Coffey, and for more than two years prior to the application for patent by the said Barton H. Coffey by the several patentees mentioned in Paragraph VIII above and at the [10] places specified in their said respective patents, and by others whose names and addresses and the places of use of the said devices, are unknown to defendant at this time, but defendant prays leave to set the same up in an amendment at a later date when the necessary information is obtained.

XI.

And as a further, separate and special defense, defendant alleges as special matter that for the purpose of deceiving the public, the description and specification filed by the said Barton H. Coffey in the Patent Office in his application which eventuated in letters patent No. 1,010,020, was made to

contain less than the whole truth relative to his invention or discovery, or more than is necessary to produce the desired result; and further that the said alleged invention and the said alleged letters patent here in suit, and each and every claim thereof, is lacking in novelty or utility, or the quality of invention, and that said letters patent, and each of the claims thereof, are invalid in all respects.

XII.

For a further, separate and special defense, defendant alleges that the devices made, used and sold by it, and which it believes to be the device charged in said bill of complaint to be an infringement of plaintiff's alleged letters patent, has been for many years last past made and sold by defendant, and that the said manufacture, use and sale of said devices was at all such times known to the plaintiff, but, prior to the commencement of this suit, plaintiff never notified defendant that said devices, or any of them, were claimed by plaintiff to be an infringement of any alleged letters patent owned by plaintiff, but plaintiff at all said times, with full knowledge of said manufacture, use and sale of said devices by defendant, remained silent and failed to assert their rights, if any, under said alleged letters patent No. 1,010-020; and by reason of plaintiff's said silence and failure to claim that said device infringed plaintiff's patent, and in reliance thereupon, [11] defendant manufactured, used and sold said devices and expended large sums of money in building up

a business in the manufacture, use and sale of said devices, in buying additional land and tools, erecting buildings, advertising and otherwise expanding its business, all with the full knowledge of but without protest from, or the assertion of any alleged claims or rights, by plaintiff; wherefore, defendant charges and alleges plaintiff is estopped from asserting or maintaining the alleged infringement of said letters patent sued on herein, and by reason of said facts, plaintiff has been guilty of laches in asserting any such alleged rights, and in alleging infringement of said letters patent, and in instituting this suit thereon.

SETOFF, COUNTERCLAIM AND CROSS-COMPLAINT.

CAUSE ONE.

And for a further and separate defense, and by way of setoff, counterclaim and cross-complaint against plaintiff herein, and praying for affirmative relief, defendant alleges as follows:

XIII.

That the defendant herein, under the name originally as Standard Engineering Company, was originally incorporated May 25th, 1909, and by due process of law said name was changed on November 1st, 1910, to Braun, Williams & Russell, Inc., and again on September 29th, 1911, was changed to C. F. Braun & Co., and as such has remained ever since and is so to-day; that defendant for several years last past and long prior to the filing of this suit was lawfully engaged in the business of manufacturing, among other things, Water Cooling Tow-

ers, and during a long course of honorable dealing had and has built up a large, successful and remunerative business in said structures in and throughout the State of California and elsewhere in the United States; that defendant's said product and the workmanship applied thereto has been of high quality and has met with general favor in the trade from purchasers, so that the defendant has acquired and enjoyed a high reputation and an established and profitable business and valuable goodwill [12] in respect of said product not only in this district but in various parts of California and elsewhere in the United States, and that save for the unlawful actions of said plaintiff herein complained of this defendant would still remain in the undisputed enjoyment of said business and reputation and goodwill.

XIV.

That the plaintiff has for several years last past made improper and unlawful use of its alleged ownership of various patents on Cooling Towers, including the patent in suit, and more recently, as defendant is informed and believes, made improper and unlawful use of the fact of bringing this suit against this defendant, all with the unlawful purpose of harassing, annoying, injuring and damaging plaintiff, its agents and customers, in its and their legitimate business aforesaid.

XV.

Defendant shows that the plaintiff, Cooling Tower Company, Inc., is a competitor of the defendant in the same business field covered by the

defendant in the sale and construction of Water Cooling Towers, and said plaintiff has and is unlawfully and maliciously misusing the said alleged ownership of the various patents, including said alleged letters patent No. 1,010,020, by malicious and untrue representations in an endeavor to secure the trade of the said defendant, and of its agents, and to injure the reputation, trade and goodwill of said defendant, and has succeeded therein to the great injury and damage of defendant and its legitimate business and goodwill and reputation.

XVI.

That plaintiff, Cooling Tower Company, Inc., has written letters and otherwise represented to the customers and prospective customers and prospects of defendant herein, and who had either purchased or were anticipating the purchase of devices and products of defendant, unlawfully and maliciously alleging that the defendant was at one time agent of plaintiff; that defendant stole plaintiff's design; that defendant's [13] Towers were copies of plaintiff's designs; that defendant was infringing various and sundry patents of plaintiff, but at no time whatever, so far as defendant is informed, did plaintiff ever specify any particular patent or what particular feature or features constituted the alleged infringement; that various customers of defendant were, in fact, customers of plaintiff, whereas the contrary was true; that defendant had resorted to unfair means in getting business; that suit would be instituted against all users of defendant's product.

Defendant further shows that said representations were knowingly and maliciously false and constituted gross slander on the legitimate business of defendant and in some instances resulted in the alienation of some of defendant's customers and in lost sales, the amount of which cannot at this time be estimated without an accounting, but, as defendant is informed and believes, is in excess of fifty thousand (\$50,000.00) dollars; that this practice of writing letters and threatening customers and prospective customers of defendant by plaintiff has existed over a period of several years.

XVII.

That this defendant further shows, by facts within the knowledge of its officers and its attorneys and on information and belief, that as long ago as July, 1918, about the first day of July, 1918, said plaintiff addressed a letter to the Union Oil Company of California, one of defendant's customers, in which plaintiff said:

“We were just about to write you when your inquiry came in, as only a few days ago we received report from a Californian that the Union Oil Company of California was operating a tower supplied by Braun. We had Mr. Braun handle for us the California end of our negotiations in connection with the first towers we built for the Dutch Oil interests at their Shell Company Plant at Martinez, Calif., but our experience in that case did not justify our making him our representative, and later he

tried to procure additional business from the same people by using [14] our designs.

“We have straightened out the matter with the Dutch Oil interests, who have become very good customers and friends of ours, and we thought that Braun had discontinued his Prussian methods after this adventure, but the report that we received leads us to believe that in the case of your company and one other, he has been using his former connection with our company to procure business for cooling towers built on our patents.

“In order to protect our business, as well as the reputation of our towers, every one of which is operating in a highly satisfactory manner, we must, of course, take the matter up vigorously and would much prefer co-operating with you in determining whether the tower you purchased from Braun is an infringement or not, and then licensing you to continue the use of our various patents in connection with this installation, rather than to determine the question by suit against your company.”

That said letter was false and malicious and was known by plaintiff to be false and malicious; that as a matter of fact as early as the year 1915 defendant, as Erecting Engineers at that time, called for bids from several manufacturers of Cooling Towers, including Mitchell-Tappen Company, which defendant is informed, was the predecessor in interest of the plaintiff, and that the steel work for two towers was purchased by defendant from

the said Mitchell-Tappen Company and erected for the Shell Company; that never at any time did defendant represent the Mitchell-Tappen Company or this plaintiff, or hold itself out to represent said companies, or either of them, nor did defendant ever have any dealings with them, or either of them, other than for the steel work for the two towers aforesaid; that, as far as defendant is informed, neither the plaintiff nor the Mitchell-Tappen Company have ever at any time sold any [15] towers of any nature to the said Shell Company, at Martinez, California, or elsewhere; that, as defendant is informed and believes, plaintiff addressed a letter in words as follows, to wit, on July 11th, 1918, to Standard Oil Company, another of defendant's customers:

“We have yours of the 5th and shall be glad to avail ourselves of the co-operation your courtesy implies.

“We have been informed that the tower furnished by Mr. Braun is an infringement and of course do not wish to take either his word or the word of his attorney that the tower does not infringe our patents.

“Mr. Braun's attorney must know that the serial number he has given of an unissued patent is of no use to us as these matters are secret until the patent is issued, and we therefore can get no information from the Patent Office without his permission.

“Braun of course could make out application for patent which would be an exact counterpart of

ours and mark any device that he built 'Patent Applied for,' but such a procedure would not in any way relieve him or the parties to whom he sold the apparatus from responsibility.

"Mr. Braun might patent even a special bolt to be used in connection with our tower and in describing this bolt show in his patent papers our complete cooling tower showing all our patented parts, and while the patent would probably be allowed and issued it would only give him the right to these bolts, and although his patent described our towers thoroughly neither he nor the purchaser would be relieved of responsibility in case he did furnish such a tower without our consent.

"We would suggest that the easiest way for both you and ourselves to determine the matter would be for you to forward to us the plan of the tower which he has erected for you and by going over these plans we can determine the matter for ourselves. We will of course return the plans to you, and advise you as to our findings.

"If Mr. Braun wishes to furnish to you for our [16] inspection copies of his correspondence with the Patent Office in regard to serial number 212,410 we of course will be glad to go over same.

"We know from experience that co-operation in a matter of this kind saves both time and money for both parties, and desiring the goodwill of pros-

pective customers as well as their business, we remain

“Yours very truly,
“THE COOLING TOWER COMPANY,
INC.,
“By (Signed) L. C. PHILLIPS,
Treasurer.”

Copy.

FC.

That the statements therein charging or imputing improper conduct to defendant or its officers, or any of them, were and are wilfully false and malicious and were known to be such at the time the said letter was written by the said plaintiff.

That on July 18th, 1918, the following letter was addressed to the Cooling Tower Company by defendant's attorney;

“San Francisco, July 18th, 1918.

“Cooling Tower Company,

“90 West St.,

“New York City, New York.

“Gentlemen:

“As attorney for C. F. Braun & Company, of this city, my attention has been called to your misrepresentations that the Braun Cooling Tower in some way or another is in infringement of your patents, and to your threats of suit against the Braun Company's customers unless they see fit to take a license from you.

“Instead of acting in the legal way open to you (if you consider that your patents, or any of them, is or are being infringed) you have seen fit to

harass and attempt to intimidate my client's customers, which action on your part can only be characterized as unfair and legally indefensible. [17]

“These unfair tactics have been known to us for some time, but we have patiently borne your misrepresentations, feeling that they would in the end hurt you much more than they have hurt us. The time has come, however, when it is either necessary that you forthwith desist from resorting further to such discredited methods or that you bring an action for infringement as you may be advised in the premises.

“More particularly I have before me a copy of your scurrilous, not to say libellous, letter that you wrote under date of July 1st, 1918, to the Union Oil Company of California.

“As to the libellous and defamatory matter of your letter to the Union Oil Co., that is a personal question between Mr. Braun and you, and I am not advised what steps, if any, he may take by way of criminal prosecution.

“The present letter is to warn you against your unfair practices under the guise of your patents.

“Your course of procedure is particularly reprehensible as you have not seen fit to adopt the more regular and usual mode of communicating your grievance to the one primarily responsible, i. e. the manufacturer, but, on the contrary, you have sought the irregular method of mischievously interfering with the manufacturer's trade in an attempt to destroy a rival's business by endeavoring to sow

the seeds of dissension and suspicion among the trade. You must well be aware of what the courts have had frequent occasion to say in regard to such practices.

“The patents to which I assume you refer are the following:

“ #1,010,020, Nov. 28th, 1911, Device for Cooling Liquids,

“ #1,027,184, May 21st, 1912, Cooling Tower,

“ #1,158,107, Oct. 26th, 1915, Cooling Tower. [18]

“With respect to your charge of infringement, I have only to say that if your complaint is made in good faith, it displays an unpardonable ignorance both on what C. F. Braun & Company is doing and of the claims of the Coffey patents. If this charge of infringement is not made in good faith, then you are guilty of unfair dealing.

“Assuming that your charge of infringement has been made inadvertently and without a full and proper investigation, I have only to say that I have carefully examined into the claims of each of your patents above mentioned and compared them with the structure of the Braun Company and have reported to Mr. Braun that your charge of infringement is without any basis in fact.

“I beg now to advise you that C. F. Braun & Company does not propose to submit to the tactics to which you are resorting in your attempts to secure business, and we shall hold you strictly accountable for any damages that may result or have resulted from your method of pursuing my client’s patrons.

“If you are honest in your belief that my clients

are invading upon whatever patent rights you have, your counsel will doubtless inform you as to the proper course to pursue in order to protect your alleged rights.

“Failing a discontinuance of your unlawful methods, we shall seek relief in the courts for damages as well as an injunction.

“You will please be guided accordingly.

“Yours truly,

“(Signed) CHAS. E. TOWNSEND.

Attorney for C. F. BRAUN & COMPANY.”

CET:C.

That in reply thereto the following letter was received from Andrew Foulds, Jr., as attorney for the plaintiff:

“Fifteen John Street,

“New York City.

“July 30, 1918.

“Messrs. Dewey, Strong & Townsend, [19]

“911-916 Crocker Building,

“San Francisco, Cal.

“Gentlemen:

“The Cooling Tower Company of this City have handed to me for reply your letter to them of the 18th instant, relative to C. F. Braun & Co. You are apparently misinformed as to the conditions. From the information at hand it appears that your clients have used cuts of the Cooling Tower Company towers in their literature and have in other ways unfairly taken advantage of the reputation of the Cooling Tower Co.

“We have been informed that your clients have infringed the patents of the Cooling Tower Company, and are only awaiting definite proof before bringing suit. The considerable distance which separates our two cities has made it difficult to learn the facts, which is the only reason for the delay.

“If our information is correct C. F. Braun & Co. or someone connected with them has actually enlarged one of the Cooling Tower Co. towers by using its plans for the purpose and the natural assumption is that the same thing has been and will be done elsewhere.

“I assume that your letter was written in good faith and therefore request that you furnish me with drawings and specifications of the towers erected, in order that I may satisfy myself on the question of infringement and also inform me whether Braun or his company have used the Cooling Tower Co. plans in construction work.

“I am satisfied that the Cooling Tower Company have been entirely within their rights in their correspondence, and I am unable to discover anything upon which you base your inferences of any unfairness on their part.

“Your prompt attention to this matter will be appreciated.

“Yours truly,

(Signed) “ANDREW FOULDS, Jr.

AF:IF.

That in answer thereto Counsel for defendant replied [20] as follows:

“August 28th, 1918.

“Messrs. Ashley, Foulds & Galland,

“15 John St.,

“New York City, New York.

“Gentlemen:

“Re-cooling Tower Co.—C. F. Braun & Co.

“Delay in answering your favor of July 30th, 1918, has been due, first, to the fact that I have been absent from the city, and, second, a desire to inquire further into the matters raised by your letter.

“The information now before me, and particularly the frank acknowledgment in the second and fourth paragraphs of your letter to the effect that the Cooling Tower Co. and your good selves are still lacking definite proof as to alleged infringement, confirms the views previously expressed in my letter of July 18th, 1918, to the Cooling Tower Company, and there appear no good reasons for withdrawing any of the statements made at that time of our intention to protect ourselves against the questionable practices of the Cooling Tower Company.

“Naturally C. F. Braun & Co. does not desire to engage in litigation any more than any other reputable concern, but if it is necessary to test out the question of alleged infringement, the sooner such suit is instituted and determined the better; and the Braun Co. will cheerfully co-operate in obtaining an early hearing and settlement of the matter. But before any suit is brought, we would suggest that you ascertain the true facts not only in regard to what the Braun Co. is actually doing but

the true facts in regard to the past relations between the parties.

“It is not true that the Braun Co. has either copied the Cooling Tower Company’s literature or otherwise acted unfairly. Some three years ago they erected two Cooling Towers under a proper and well understood arrangement with the predecessors of your client. These towers were illustrated in [21] some of the literature of the Braun Co. as showing specific instances of engineering work actually constructed by the Braun Co. (You understand, of course, that neither the Cooling Tower Co. nor the Mitchell-Tappen Company had anything to do with the actual building of these towers or getting the order for the towers.)

“The cuts of these towers, with others built by the Braun Co., were simply to illustrate the Braun Co.’s ability for constructing large work of this kind. Those particular towers were never claimed to be Braun towers. The Braun Co. considered that in showing the cuts of work actually executed by them that they were entirely within their rights. The use of the bulletin in which these cuts appeared was discontinued more than a year ago, so that if your client ever had any cause for complaint, they are rather late in asserting it. Manifestly, you will agree with me that it was hardly a square thing for them to express their disapproval of whatever they thought the Braun Co. was doing or had done in the past by offensive circumlocution.

“Furthermore, I am authorized to state on behalf of Mr. Braun’s company that the Braun Co. has

never used any plans of the Cooling Tower Company at any time, except in connection with the contract for the two towers erected three years ago under the circumstances previously referred to in this letter.

“As I view the situation, it is simply a case of a disgruntled competitor trying to get even without much regard to the methods employed. It is, therefore, with the fullest confidence that I state that the charge of infringement, if made in good faith by the Cooling Tower Company, is frivolous and I am convinced that upon looking into the matter and learning the true facts in regard to the situation you will be of the same opinion.

“As far as the Braun Co. is concerned the Cooling Tower Company’s patents possess only a nuisance value. The Braun Co. has invested large sums of money in developing its own line of specialized towers, it is proceeding in good faith, and it is [22] in the business to stay.

“I therefore, repeat that, if it is the Cooling Tower Company’s intention to bring suit, they act promptly in the matter with a view of early determining the legal rights and liabilities of the respective parties under the circumstances.

“Yours very truly,

“(Signed) CHAS. E. TOWNSEND,
“Attorney for C. F. BRAUN & CO.”

CET:C.

That further the plaintiff did not reply nor did plaintiff bring suit, but on the contrary, as defend-

ant is informed and believes, numerous and other letters were sent out by plaintiff similar to the letters aforesaid to the Union Oil Company and Standard Oil Company; and that notwithstanding said correspondence passing between the attorneys for plaintiff and defendant and the invitation on behalf of defendant to effect an early determination of the legal rights and liabilities of the respective parties under the circumstances, the said plaintiff, Cooling Tower Company, Inc., continued to write letters and to harass, annoy and attempt to intimidate and to intimidate customers and prospective customers of defendant herein.

XVIII.

That the plaintiff, Cooling Tower Company, Inc., well knew that a suit brought directly against this defendant, C. F. Braun & Co., would settle once and for all any legal or equitable differences between plaintiff and this defendant, and of all the customers and other prospective customers of defendant, and knew further that the burden of defending all suits brought against any of defendant's customers or prospective customers primarily and essentially rested upon this defendant.

XIX.

Nevertheless, the defendant shows that notwithstanding these facts, plaintiff has been and is endeavoring to break up and to destroy the business of this defendant, and to drive the said defendant out of the field of manufacturing Water Cooling Towers, and to prevent the sale of said manufactured [23] article by this defendant within this

district, and elsewhere, by its campaign of malicious and untruthful representations as to the alleged ownership of so-called basic patents by the plaintiff of its alleged infringement by this defendant and by other misrepresentations against this defendant, as aforesaid; that on information and belief said plaintiff, by advertisements and otherwise, has given great publicity to the bringing of this suit and has sent out threatening communications, both oral and written, to the customers and prospective customers and agents of this defendant, making unjust and untrue charges against this defendant, and misrepresenting the character and nature of the Water Cooling Towers manufactured by it, and representing that the same is in violation of certain letters patent; but said plaintiff has failed to specify which of the claims of said patent alleged to be infringed was, or are claimed to be, infringed, and has failed to set out the nature of the claims, or otherwise to inform the trade or the public in what respects defendant's device was, or is an infringement, if at all, whereas, in truth and in fact the device manufactured and sold by this defendant, and by its agents and customers, is in no way similar to, or like that upon which plaintiff owns, or claims to own, patent rights, and as a matter of fact, the said Coffey patent No. 1,010,020 sued on covers and claims a device in which the strips or drip bars of the decks, between which the water drips in the process of cooling, are specifically limited to being "separately fastened" and "loosely splined together" and by no reasonable construction could

the claims of said patent be read upon the device made, used and/or sold by defendant herein; nevertheless, plaintiff, and its attorneys, have sent out, and are continuing now to send out threatening letters and communications to customers and prospective customers of this defendant, and of its agents, threatening them with litigation, and with claims for damages, and other dire consequences, if they buy or sell, or use the device manufactured by this defendant; and that if these customers or prospective customers of the defendant attempted to buy or install any [24] Water Cooling Towers made by defendant, that it, plaintiff, would bring suit against said purchasers or users, and intimating that this Court would grant an injunction against such use of said devices; that plaintiff has sought to intimidate, and have intimidated in many instances prospective customers of the defendant by plaintiff's reckless threats and intimation of wholesale and indiscriminate litigation, and as defendant is informed and believes the otherwise libelous, malicious and untrue statements concerning defendant and its officers and business, and in some instances defendant and its agents have lost the sale that defendant, or its agents, would otherwise have legitimately made.

XX.

That the business and goodwill of this defendant in manufacturing and marketing the said Water Cooling Towers is an important, valuable and profitable business as plaintiff well knows; that plaintiff by threatening litigation as aforesaid is harassing de-

defendant and paralyzing defendant's legitimate business, not only in cooling towers but in its other products; that by so doing plaintiff is throwing the financial burden of litigation upon defendant, and otherwise by its unlawful acts aforesaid is causing defendant serious financial loss, and loss of business and injury to its reputation and goodwill; and if allowed to continue for even a short time will cause this defendant great and irreparable injury in carrying on its lawful business, for the reason that its production and number of sales are relatively small because the nature of the device restricts it to a limited number of large concerns which need a device of this nature, and the loss of a few customers would result and has resulted in irreparable injury, because where the needs of a customer are satisfied he will not and does not need additional equipment of this nature for many years; it being common knowledge that when one of these devices is installed it lasts for a very long time and does not require replacement for many years, and that, [25] therefore, when plaintiff by its unfair methods as set forth above deprives defendant of a sale of such a device, it means that every prospective customer thusly intimidated is permanently removed from the list of prospective purchasers of defendant's device; and such unfair, unjust and unwarranted acts by plaintiff greatly injure and impair the salability of the defendant's said Water Cooling Towers, and injure and impair the reputation of this defendant, especially in view of the fact, as defendant is informed and believes, plaintiff takes

advantage of the situation thus created publicly and extensively to advertise the facts of this suit against the defendant's device, and all without just or any cause.

XXI.

That this suit brought against this defendant will determine the rights of the plaintiff and defendant under said letters patent No. 1,010,020; that there is no point at issue, or to be brought to issue in connection with defendant's manufacture, use and sale of said Water Cooling Towers or their use by customers and prospective customers of defendant that cannot be fully litigated in this action; that should the plaintiff prevail in this action it can stop the further manufacture of this device by this defendant, and thus accomplish in one action all that the threatened additional actions would accomplish for it, and this defendant stands ready and willing to bring the above-entitled cause on for trial at the first open date in the above-entitled court without unnecessary delay, so that this matter may be quickly settled and the rights of the various parties fully determined.

XXII.

Defendant shows that it has not committed any wrongful, unlawful or unfair act in respect to the premises at any time against the plaintiff; and that plaintiff has not come into court with clean hands.

XXIII.

That the acts of the plaintiff herein complained of [26] have not been done or made in good faith

but maliciously and without just or reasonable cause and solely for the purpose of harassing and injuring and causing, and has caused, irreparable injury to this defendant, and to destroy its business and reputation and goodwill, in an attempt to obtain a monopoly on behalf of plaintiff, to which the said plaintiff is not rightfully entitled; that said acts of the plaintiff have been done or made wilfully, maliciously, falsely and fraudulently and by so doing plaintiff has been guilty of unfair competition against this defendant, and has libeled, slandered, and damaged the property rights of this defendant, and threatens to continue so to do, and defendant believes plaintiff will continue so to do unless restrained by this Honorable Court.

XXIV.

Defendant further shows that unless the plaintiff be restrained from bringing other suits in this district and elsewhere against defendant's agents and customers, and from continuing its unfair course of threats and harassment as above set forth, immediate and irreparable injury, and further loss and damage will result to this defendant before this case can come to final hearing and determination, in that by reason of the nature of the Water Cooling Tower device manufactured by defendant and which is believed by defendant to be the device which is alleged to infringe letters patent No. 1,010,020, the number of possible customers is extremely limited.

XXV.

That defendant by reason of the acts of the plaintiff herein complained of has suffered great and

irreparable damage from the said plaintiff, the amount of which defendant cannot state, but is in excess of the sum of fifty thousand (\$50,000.00) dollars. [27]

COUNTERCLAIM—CAUSE 2.

And as a further setoff, counterclaim and cross-complaint, and as being a cause of complaint which might be the subject of an independent suit in Equity by this defendant, C. F. Braun & Co., against plaintiff herein, Cooling Tower Company, Inc., defendant alleges:

XXVI.

That prior to the 18th day of January, 1918, one Carl F. Braun was the original, first and sole inventor of a certain new and useful invention entitled "Water Cooling Tower," and did upon said date file in the Patent Office of the United States an application for letters patent for said invention.

XXVII.

That thereafter, to wit, on the 23d day of March, 1920, letters patent for said invention No. 1,334,515 were granted, issued and delivered by the Government of the United States unto the said Carl F. Braun, in the name of the United States of America and signed by the Commissioner of Patents of the United States, whereby there was granted to the said Carl F. Braun, his heirs or assigns, the sole and exclusive right to make, use and vend the said invention throughout the United States of America and the territories thereof for a period of seventeen (17) years from the 23d day of March, 1920; and

that prior to the issuance of said letters patent all proceedings were had and taken which were required by law to be had and taken prior to the issuance of letters patent for new and useful inventions; and that a more particular description of the invention so patented will appear in and by the said letters patent, which are ready in court to be produced by the defendant, and profert is hereby made thereof.

XXVIII.

That prior to the 28th day of April, 1920, one Carl F. Braun was the original, first and sole inventor of a certain [28] new and useful invention entitled "Water Cooling Tower" and did upon said date file in the Patent Office of the United States an application for letters patent for said invention.

XXIX.

That thereafter, to wit, on the 16th day of January, 1923, letters patent for said invention No. 1,442,784 were granted, issued and delivered by the Government of the United States unto the said Carl F. Braun, in the name of the United States of America and signed by the Commissioner of Patents of the United States, whereby there was granted to the said Carl F. Braun, his heirs or assigns, the sole and exclusive right to make, use and vend the said invention throughout the United States of America and the territories thereof for a period of seventeen (17) years from the 16th day of January, 1923; and that prior to the issuance of said letters patent all proceedings were had and taken which were required by law to be had and taken prior to

the issuance of letters patent for new and useful inventions; and that a more particular description of the invention so patented will appear in and by the said letters patent, which are ready in court to be produced by the plaintiff, and profert is hereby made thereof.

XXX.

That said Carl F. Braun, by an instrument in writing, duly sold, assigned and transferred unto the defendant herein, all right, title and interest in and to said Braun letters patent No. 1,334,515 and No. 1,442,784, and each of them, together with all rights of action and claims for damages and profits accrued or accruing since the issuance of said letters patent, and each of them, and that the defendant herein is the sole and exclusive owner of all the right, title and interest in and to the said inventions and the respective letters patent therefor aforesaid and is solely entitled to bring and maintain this setoff, counterclaim and cross-complaint. [29]

XXXI.

That prior to and since the issuance of said respective letters patent and the assignments of same as aforesaid, defendant herein, C. F. Braun & Co., has gone to great expense and made great efforts to introduce the said Water Cooling Towers to the public and has created a favorable impression thereof with the trade and has spent large sums of money in developing plant and equipment for the manufacture of same and has spent years of time in the development of a substantial and lucrative busi-

ness, and except for the infringements by plaintiff herein complained of, the defendant herein has enjoyed the monopoly granted by said respective letters patent and the public generally has acquiesced therein; and since the grant of said respective letters patent, the defendant herein has given notice to the public that the same were patented by affixing to said manufactured Water Cooling Towers the word "Patented," together with the day and year in which the said respective letters patent were granted.

XXII.

That the plaintiff herein, well knowing the premises and the rights secured to defendant herein, and since the issuance of said respective letters patent as aforesaid and within the six (6) years last past, and within the Southern Division of the Northern Judicial District of California and within the jurisdiction of this court, and elsewhere within the United States, did, without the license or consent of defendant herein and in infringement of the aforesaid respective letters patent and of the claims thereof, and each of them, and in violation of defendant's rights thereunder, practice and use the said invention by the manufacture, sale and use of devices made according to the said respective letters patent and described and claimed in the said respective letters patent, and in violation of each and all of the claims thereof, and threatens to continue the said infringement; and by reason of the said infringement the plaintiff, Cooling Tower Company, [30] Inc., has realized large profits and defendant, C. F.

Braun & Co., has suffered large damages, but the amount of such profits and damages is unknown to defendant and can be ascertained only by an accounting.

XXIII.

That plaintiff herein threatens to continue indefinitely the said infringement herein complained of, and unless restrained therefrom by this Court will continue the same, whereby defendant will suffer great and irreparable damage for which there is no plain, speedy or adequate remedy at law.

WHEREFORE, defendant prays a decree of this Court as follows:

First. That the bill of complaint filed by plaintiff herein shall be dismissed.

Second. That a writ of injunction, provisional during the pendency of this suit as well as permanent, shall issue out of this court, enjoining and restraining the plaintiff, its officers, directors, clerks, attorneys, servants, agents and employees from issuing letters or advertisements, or publishing statements in any form whatsoever, either written or oral, claiming that defendant's Water Cooling Tower devices infringe said alleged letters patent No. 1,010,020 or any other letters patent of plaintiff, and from sending circulars or letters to any customer, representative, or prospective customer, or prospect of this defendant, threatening such person or persons with litigation or prosecution, or with the costs and expenses of litigation, or otherwise publishing statements, either written or oral, intended or by reasonable construction likely

or apt to cause injury or damage to this defendant in the business of manufacture, use and/or sale of said Water Cooling Towers.

Third. That the Court will in rendering said decree for an injunction against said unfair competition of the plaintiff, and improper use of the alleged ownership of the said Coffey Patent in suit No. 1,010,020, assess, or cause to be assessed against this plaintiff the damages which defendant has sustained by [31] reason of such unlawful and unfair acts of the plaintiff, as recited herein, and also the profits which have accrued to the plaintiff by reason of its unlawful acts, as aforesaid.

Fourth. That the Court will increase the amount of said damages by reason of plaintiff's willful, malicious and oppressive interference with the defendant's rights.

Fifth. That upon the filing of this setoff, counterclaim and cross-complaint a preliminary injunction be granted enjoining and restraining plaintiff, its officers, directors, clerks, attorneys, agents, servants and employees, *pendente lite*, either directly or indirectly, from making, using or selling any device or devices which infringe upon said respective letters patent No. 1,334,515 and No. 1,442,784, or either of them, or from contributing to any such infringement.

Sixth. That upon final hearing said plaintiff, its officers, directors, clerks, attorneys, agents servants and employees be permanently and finally enjoined and restrained from either directly or indirectly making, using or selling any device or de-

VICES which infringe upon said respective letters patent No. 1,334,515 and No. 1,442,784, or either of them, or from contributing to any such infringement.

SEVENTH. That the defendant have and recover from the plaintiff the profits realized by the said plaintiff and the damages sustained by the defendant from and by reason of the infringement aforesaid, and that because of the vicious and malicious manner of the infringement, and the unfair practices adopted by plaintiff in connection with such infringement that such damages be trebled.

EIGHTH. That the defendant be awarded and decreed to recover from plaintiff its costs and disbursements in this suit and such other and further relief as to the Court may seem proper and in accordance with good conscience.

C. F. BRAUN & CO.

By CHAS. E. TOWNSEND,

Its Attorney.

CHAS. E. TOWNSEND,

WM. A. LOFTUS,

WM. S. GRAHAM,

Solicitors and Counsel for Defendant.

[32]

United States of America,
Northern District of California,
City and County of San Francisco,—ss.

Carl F. Braun, being duly sworn, deposes and says that he is president of C. F. Braun & Co., defendant in the within entitled action; that he has read the foregoing answer and counterclaim and

knows the contents thereof; that the same is true of his own knowledge, except as to the matters which are therein stated on information or belief, and as to those matters, that he believes them to be true.

CARL F. BRAUN.

Subscribed and sworn to before me this 10th day of February, 1923.

[Seal]

W. W. HEALEY,

Notary Public in and for the City and County of San Francisco, State of California.

Receipt of a copy of the within answer admitted this 20th day of February, A. D. 1923.

EDWARD A. O'BRIEN,

Atty. for Plff.

[Endorsed]: Filed Feb. 20, 1923. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

[33]

In the Southern Division of the United States District Court for the Northern District of California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Corporation),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

REPLY OF PLAINTIFF.

Cooling Tower Company, Inc., the plaintiff above named, for its reply to the answer of the defendant, C. F. Braun & Co., above named, admits, denies and alleges as follows:

REPLY TO SETOFF, COUNTERCLAIM AND CROSS-COMPLAINT—CAUSE ONE.

1. It is without knowledge of the several allegations in paragraph numbered XIII of the answer and therefore leaves defendant to make such proof thereof as it may be advised, and it denies that it has in any manner or form been guilty of any unlawful acts.

2. Replying to paragraph numbered XIV of the answer, plaintiff denies that it has, at any time, made any improper or unlawful use of its ownership of any patents or of the patent in suit and denies that it has made any improper or unlawful use of this suit or of the fact of bringing the same, or that it has, in any manner, harassed, annoyed, injured or damaged the defendant or its agents or customers in their business or otherwise and it denies all of the [34] allegations contained in said paragraph.

3. In reply to paragraph numbered XV of the answer, plaintiff admits that it is engaged in the sale and construction of water cooling towers and that the defendant is a competitor in the said business field and plaintiff denies that it is now or has at any other time, unlawfully, maliciously or improperly, misused its ownership of any patents or

of the letters patent in suit, No. 1,010,020 and it denies that it has made any malicious or untrue representations in any way or that it has endeavored improperly to secure any trade of the defendant or of the defendant's agents or to injure the reputation, trade or goodwill of the defendant and it denies that it has committed any acts to the injury or damage of defendant or of its business, goodwill or reputation, and it denies all of the allegations contained in said paragraph.

4. In reply to paragraph numbered XVI of the answer, it denies that it has written letters or otherwise made representations to any customer, prospective customers or prospects of the defendant other than lawfully and in the regular course of business and it denies that it has unlawfully or maliciously alleged that the defendant was, at one time, its agent or that the defendant stole the plaintiff's design but alleges the facts to be that the defendant did, at one time, act as agent of plaintiff and its predecessor and that the defendant did unlawfully and maliciously appropriate and use the design and style of cooling tower originated and used by the plaintiff and it admits that it has alleged that the alleged towers of the defendant were simulations of the designs and towers of plaintiff and its predecessor and it admits that it has, in the course of business, alleged that [35] defendant was infringing certain patent rights of the plaintiff and it alleges that the statements so made by plaintiff, were and are true, and it admits and alleges that various users of Cooling Towers asserted by the

defendant to be its customers, were the customers of the plaintiff and it alleges that it advertised its Cooling Towers throughout the United States and alleges that all of its acts and doings in the premises were lawful and proper and it alleges that the defendant has resorted to unfair means in getting business, to wit, in that the defendant did, in circulars, literature and otherwise, use and publish the designs of the plaintiff and its predecessor and did falsely and fraudulently claim and assert that the said designs of the plaintiff and its predecessor were the designs of the defendant and it admits that it has threatened to institute suits against users of Cooling Towers and other devices which infringe the patent rights of the plaintiff and that it lawfully and by proper means, has, at all times, endeavored to protect its rights in the premises and it denies that any representations made by it were false or that the same constituted a slander on the business of defendant and denies that any damage or injury resulted to the defendant, except such damage as resulted from the natural and proper business competition of plaintiff and its predecessor and it denies that it has, in any way, unlawfully damaged or injured defendant or its business.

5. Replying to paragraph numbered XVII of the answer, plaintiff admits that on or about the first day of July, 1918, it sent a letter to Union Oil Company, a fragment of which is substantially quoted in said paragraph, but it denies that the said Union Oil Company was a customer of [36] defendant and prays leave to produce the whole of the

said letter before this Court, and it denies that the said letter was false or malicious or that it was so known to be; it is without knowledge as to whether the defendant, as early as the year 1915, called for bids from other manufacturers, but it admits and alleges that in or about the year 1915, and prior thereto, the defendant applied to the predecessor of plaintiff, the Mitchell-Tappen Company for local agency for the sale of products of the said Mitchell-Tappen Company and it admits that two Cooling Towers of the said Mitchell-Tappen Company were erected for the Shell Company and alleges that at said time, the said defendant was acting as sales agent for the said Mitchell-Tappen Company and that the said Shell Company applied to the Mitchell-Tappen Company for prices and estimates relative to the said towers prior to taking the matter up with the defendant and it alleges the fact to be that the defendant did, at that time, to wit, in the year 1915, or thereabouts and prior thereto, represent the said Mitchell-Tappen Company as its local sales representative in the State of California and it denies that the defendant did not have any dealings with the said Mitchell-Tappen Company other than for the steel work for the towers aforesaid and alleges the facts to be that the defendant, at said time, had dealings with the said Mitchell-Tappen Company relative to the sales agency for said Cooling Towers and that the prospective customers in said territory were, at said time, referred by the Mitchell-Tappen Company to the defendant and defendant alleges that the said Mitchell-Tappen Company,

through the said defendant, did, in or about the year 1915, sell two Cooling Towers to the said Shell Company and it admits that on or about July 11, 1918, it wrote a letter to Standard Oil Company, a part of which is quoted [37] substantially in the said paragraph, but it is without knowledge as to whether said Standard Oil Company then was a customer of defendant and leaves the defendant to make such proof thereof as it may be advised, and it denies that any statements contained in the said letter were or are false, malicious or untrue or that they were so known to be by the plaintiff and alleges that the facts stated in the said letter were and are true.

It admits that on or about July 18, 1918, a letter substantially as quoted in the said paragraph was received by it from one Charles E. Townsend purporting to be the attorney for the defendant and it admits that in answer thereto, a letter dated July 30, 1918, substantially in the form quoted in the said paragraph was sent to Dewey, Strong and Townsend of San Francisco and it admits that a letter dated August 28, 1918, substantially as quoted in the said paragraph, was sent by said Charles E. Townsend, purporting to be the attorney for the defendant and it denies that no reply to said letter was sent and alleges the fact to be that a reply was sent to said letter and was received by the said attorney for the defendant, as plaintiff verily believes, and it admits that no suit was brought at that time for the reason that defendant, though requested so to do, refused to give plaintiff

information as to its acts and plaintiff was unable to obtain the definite information relating thereto, and it denies that it did, in any manner, unlawfully harass, annoy or attempt to intimidate any customers or prospective customers of defendant herein, and except as herein expressly admitted, plaintiff denies the allegations in said paragraph.

6. Replying to paragraph numbered XVIII of the [38] answer, plaintiff denies that it had knowledge that a suit, then brought against defendant, would settle any legal or equitable questions of difference and denies that it knew that the burden of defending any suit brought against a customer of defendant would be undertaken by the defendant and it alleges the fact to be that it believed at that time and still believes that the defendant would, by unlawful and dilatory tactics, attempt to conceal the true facts and would by reason of the distance separating the parties geographically, put the plaintiff to great expense and annoyance in the prosecution of the said suit and the said belief was based upon the refusal of the defendant to give the plaintiff information as to the infringing devices manufactured or sold by it and the unlawful and malicious appropriation by the defendant of the business of the plaintiff and its predecessor and of the plaintiff's Cooling Towers and of photographs and cuts thereof, and it denies the allegations contained in paragraph numbered XVIII.

7. Replying to paragraph numbered XIX of the answer, plaintiff denies that it has, at any

time, endeavored to break up or destroy the lawful business of the defendant or to drive the defendant out of any lawful business or to drive the defendant out of the field of manufacturing water cooling towers or to prevent the sale, by the defendant, of any lawful devices, but alleges that it has endeavored to prevent the defendant from unlawfully and wrongfully appropriating the designs and business of the plaintiff and it denies that it has, in any manner, made use of any malicious or untruthful representations or statements as to the ownership of any patents by it or of the infringement thereof by defendant or that it has made any misrepresentations against the [39] defendant as alleged in the said answer or otherwise and alleges the fact to be, that all of its statements or representations in the premises have been and are true and it denies that it has, in any manner, given unlawful or improper publicity to the bringing of this suit or the fact of this suit and denies that it has, in any manner, unlawfully threatened any persons, either customers, prospective customers, or agents of defendant or otherwise, except such proper warning notices as may have been lawfully sent out in connection with the prosecution of the plaintiff's lawful business and it denies that it has made any unjust or untrue charges against the defendant or that it has misrepresented the character or nature or otherwise of any Cooling Towers manufactured by it or otherwise, but it admits that it has alleged and does now allege that the manufacture or sale of the pretended Cooling

Towers of the defendant constituted and do constitute a violation of the patent rights of the plaintiff, and it denies that it has, in any manner, concealed any of its claims whatever, but alleges that it has given the same as full and complete publicity as was lawful and proper in connection with the prosecution of its business and it denies that the device manufactured and sold by the defendant and its agents and used by its customers is not similar to or like the devices of plaintiff and alleges the fact to be that the devices of the defendant are simulations and copies of the devices originated by the plaintiff and its predecessor and it denies that the scope and nature of the plaintiff's patent No. 1,010,020 is properly, correctly or truly set forth in the said paragraph and begs leave to refer to the said letters patent or a duly certified copy thereof here in Court to be produced and it alleges that the devices of the defendant constitute an infringement of the plaintiff's [40] said letters patent and it denies that it has, in any manner, unlawfully sent out letters, communications or notices relative to its rights under said letters patent and alleges that all of the letters, communications and notices issued by it, have been lawful and proper and alleges the fact to be that it intends, in good faith, to prosecute, promptly and diligently, all infringements of the said letters patent and of any and all letters patent owned by it and it admits that it has notified users of Cooling Towers of its rights and intentions in the premises and it admits and alleges the fact to be that it verily

believes that this Court will grant injunctions restraining the unlawful use, manufacture or sale of infringements of its patents, and it admits that it has so stated to users of Cooling Towers and devices and it denies that it has, in any manner, sought to improperly or unlawfully intimidate any customers of the defendant and it denies that it has made any unlawful or improper threats or that it has ever threatened or intimated an intention to prosecute, wholesale, indiscriminate or, improper litigation in connection with its said patents or otherwise and except as herein expressly omitted, all the allegations in said paragraph are denied.

8. In reply to paragraph numbered XX of the answer, plaintiff is without knowledge as to the value or importance of the defendant's business or whether the same is profitable to the defendant, but verily believes that the profits and business unlawfully obtained by the defendant by the infringement of the plaintiff's patent rights and the copying of the plaintiff's designs has been profitable to the defendant and has greatly injured the plaintiff, and it denies that it has, in any manner, improperly injured or damaged the [41] defendant's legitimate business, and denies that it is, in any manner, causing defendant any loss of any nature, except that it is endeavoring to obtain from the defendant the profits unlawfully obtained by it from the manufacture, use and sale of the plaintiff's devices and denies that the plaintiff's acts will constitute or cause any loss or damage

to the defendant improperly, but alleges the fact to be that the defendant will be, as a result thereof, merely deprived of the unlawful, improper and illegal gains made by it from the infringement of the plaintiff's patent and the infringements of plaintiff's rights, and it denies that it has been guilty of any unfair, unjust or unlawful acts and alleges the fact to be that all of the acts of plaintiff have been lawful and it denies that it has improperly advertised or made use of the facts of this suit and it denies all of the allegations in said paragraph.

9. In reply to paragraph numbered XXI of the answer, plaintiff admits that it believes that this suit will establish the rights of the plaintiff under its said letters patent No. 1,010,020 and will convict the defendant of infringement thereof and it is without knowledge as to whether there is any point at issue or to be brought in issue in connection with the defendant's manufacture, use and sale of said Cooling Towers or their use by customers and prospective customers of defendant that cannot be fully determined in this action and it alleges that it desires to fully litigate the said matter and to enforce its claims and rights against the defendant and it admits that if it prevails in this action, it will stop the further manufacture of infringing devices by the defendant. [42]

10. Replying to paragraph numbered XXII of the answer, it denies the allegations contained in the said paragraph and alleges the fact to be that the defendant has, as herein set forth, committed

wrongful, unlawful and unfair acts in its competition with the plaintiff and alleges that the plaintiff has not been guilty of any unlawful or improper acts on its part.

11. Replying to paragraph numbered XXIII of the answer, the plaintiff denies that its acts have not been done or made in good faith and alleges that it has, in good faith, and fairly and with proper and reasonable cause, done all acts in the premises and denies that it has, in any manner, improperly harassed or injured or that it is causing or has caused any injury unlawfully to the defendant or that it has done any act or thing tending to destroy the business of the defendant or its reputation or goodwill unlawfully, and alleges that any injury or damage to the reputation or goodwill of the defendant will result solely from the defendant's own unlawful, malicious and fraudulent acts as herein set forth and its infringement of the plaintiff's rights and it denies that it has, in any manner, attempted to unlawfully obtain a monopoly to which it is not rightfully and lawfully entitled and denies that it has been guilty of any wilful, malicious, false or fraudulent act as alleged in the said paragraph or otherwise and it denies that it has been guilty of unfair competition against the defendant and it denies that it has libelled, slandered or damaged the rights of the defendant or that it threatens to continue so to do and alleges the fact to be that the defendant has wilfully, maliciously, falsely and fraudulently conducted and carried on a course of unfair com-

petition in an unlawful, wicked and [43] malicious intent to obtain the business of the plaintiff and to unfairly compete with the plaintiff.

12. Replying to paragraphs numbered XXIV and XXV of the answer, the plaintiff herein denies the same.

For a separate defense to the Cause One of the alleged setoff, counterclaim and cross-complaint contained in the answer of the defendant, plaintiff alleges:

13. That in the year 1914 and for a long time prior thereto Mitchell-Tappen Company was and had been engaged in the business of producing and selling devices including water cooling towers of great merit and had expended large sums of money in perfecting the same and making the same valuable to itself and the public and expended large sums of money in advertising, introducing and popularizing its said devices and at great expense employed experts and engineers who were engaged in solving the problems attending the atmospheric cooling of water as presented by the requirements of users of such devices and its devices and service and acquired and then had a high reputation for efficiency and value.

14. On or about November 21, 1914, the defendant applied to the said Mitchell-Tappen Company for information as to its said devices and the sale thereof and stated that it had theretofore sold Cooling Towers for others but of a type different from the devices of said Mitchell-Tappen Company; that it no longer represented such other

manufacturer and was desirous of making arrangements for the sale of another device of equal or superior merit.

15. Pursuant to said request of the defendant [44] said Mitchell-Tappen Company furnished defendant with the information requested and advised it as to the compensation which would be allowed for the sale of its devices and further negotiations were had and as a result thereof the defendant undertook for value to sell the devices of said Mitchell-Tappen Company in the State of California and vicinity.

16. Pursuant thereto, Mitchell-Tappen Company furnished said defendant with the names of prospective customers and with other information and instructions and assisted defendant in procuring customers for its said cooling towers and devices.

17. Defendant accepted said business and with the assistance of said Mitchell-Tappen Company, two of its said cooling towers were sold through the defendant to Shell Company in the State of California and were erected and installed at its plant.

18. Thereafter defendant undertook to manufacture and sell water cooling towers and devices on its own account and with the wrongful and fraudulent purpose and intent of obtaining the business of said Mitchell-Tappen Company and of making sales to its customers and prospective customers the defendant caused photographs of the said Water Cooling Towers of the said Mitchell-Tappen Company to be made and advertised and

published the same as devices of defendant's manufacture and wrongfully and fraudulently pretended to be the manufacturer of the genuine Mitchell-Tappen Company devices and used the mechanical drawings obtained from said Mitchell-Tappen Company for the purpose of manufacturing imitations of the genuine devices and thereby and by fraud and device obtained business and endeavored to [45] obtain business intended for said Mitchell-Tappen Company and continues so to do and the said defendant has thereby and by means of inferior devices sold as the genuine and efficient devices of plaintiff greatly damaged the business reputation of the genuine water cooling towers.

19. Plaintiff has succeeded to the branch of the business of said Mitchell-Tappen Company which includes cooling towers and devices and now carries on said business at the city of New York and elsewhere and advertises and sells its said devices throughout the United States and maintains the high quality, efficiency and reputation thereof established by its predecessor, Mitchell-Tappen Company and is and has been continually obstructed, damaged and injured in its business by the aforesaid unlawful acts and competition of defendant.

20. That plaintiff requested that the defendant discontinue its unlawful practices and was informed by counsel for defendant that it had discontinued the unlawful use of pictures of plaintiff's cooling devices in its advertising literature and plaintiff by letter to defendant's counsel requested

that it be informed as to whether the defendant had used plaintiff's plans and drawings for the construction of such devices but such information was refused, and defendant has endeavored to conceal its unlawful acts from plaintiff.

21. That the letters, communications and statements made by it as alleged in the said answer of the defendant and otherwise were lawfully and properly made by it for the purpose of lawfully carrying on its said business.

REPLYING TO THE COUNTERCLAIM,
CAUSE 2, plaintiff alleges:

22. Replying to paragraph numbered XXVI of [46] the answer, plaintiff denies that Carl F. Braun was, at any time, the inventor of any invention as alleged in said paragraph or otherwise, but admits that on or about January 18, 1918, the said Carl F. Braun did file in the United States Patent Office, an application for letters patent.

23. Replying to paragraph numbered XXVII of the answer, plaintiff admits that on March 23, 1920, letters patent No. 1,334,515, were issued to Carl F. Braun but denies that said alleged letters patent were valid and denies that said letters patent were effective to grant any exclusive right to make, use or vend the alleged invention therein set forth and denies that the said Carl F. Braun was entitled to a patent thereon under the provisions of the Patent Laws of the United States and denies that the proceedings required by law to be had or taken prior to the issuance of said letters patent were had or taken.

24. Replying to paragraph numbered XXVIII of the answer, plaintiff denies that on April 28, 1920, or at any other time, said Carl F. Braun was the inventor of any invention within the meaning of the patent laws of the United States and is not informed, except by the said answer, whether or not upon said date the said Carl F. Braun did file in the United States Patent Office, an application for letters patent for said alleged invention.

25. Replying to paragraph numbered XXIX of the answer, plaintiff admits that on January 16, 1923, letters patent No. 1,442,784 were issued to Carl F. Braun but denies that said letters patent were effective to grant to the said Carl F. Braun any right to make, use or vend said alleged invention and denies that the proceedings required [47] by law to be had and taken prior to the issuance of the said letters patent were so had and taken.

26. Replying to paragraph numbered XXX of the answer, plaintiff is without knowledge as to whether the said Carl F. Braun assigned any alleged interest in the said alleged letters patent No. 1,344,515 and No. 1,442,784 or any claims arising out of said letters patent or either of them to the defendant and denies that the defendant is the owner of any right, title or interest in or to the said alleged inventions or the said alleged letters patent, or that it is entitled to bring or maintain its alleged set-off, counterclaim and cross-complaint.

27. Replying to paragraph numbered XXXI of the answer, plaintiff denies that the defendant has, at any time, gone to any expense or made any effort

to introduce the said alleged Water Cooling Towers to the public and denies that it has created any favorable impression thereof or that it has spent any money in connection with the manufacture of the same or the development of the alleged business and denies that the alleged rights of the defendant have been acquiesced in and denies that the defendant has given notice of its alleged patent as alleged in the said paragraph or otherwise and denies each allegation in the said paragraph.

28. Replying to paragraph numbered XXXII of the answer, plaintiff denies that it has at the time alleged in said paragraph or at any other time, and at any place infringed the alleged letters patent of the defendant or any of the claims thereof or that he has in any manner violated any rights of the defendant and denies that it has realized any gain or profit therefrom or that the defendant has [48] suffered any damage by reason of any acts of the plaintiff and denies every allegation in the said paragraph.

29. Replying to paragraph numbered XXXIII of the answer, plaintiff denies that it has ever infringed or threatened to infringe any rights of the defendant and denies every allegation in the said paragraph. [49]

20. For a further and separate defense and reply to said counterclaim, Cause 2, plaintiff alleges that by reason of the state of the prior art existing at the time of said alleged invention by the said Carl F. Braun of the device or devices alleged to be patented in and by the said alleged letters

patent No. 1,334,515 and No. 1,442,784 and each of them the said device or devices and each of them were not an invention or inventions and did not require an exercise of the inventive faculties for it or their production and were not patentable and that for that reason the said alleged letters patent No. 1,334,515 and No. 1,442,784 and each of them were and are null, void and of no effect.

31. For a further and separate defense and reply plaintiff alleges that said Carl F. Braun was not the original or first or sole or any inventor or discoverer of the alleged invention, alleged to be patented in and by the said alleged letters patent No. 1,344,515, or any or all of the claims thereof, or of any material or substantial part thereof, but that prior to the alleged invention thereof by the said Carl F. Braun and more than two years prior to the filing of the application for said alleged letters patent, the said alleged invention and every material and substantial part thereof, had been shown, described and patented in and by each of the following letters patent of the United States of America, and had been invented by each of the patentees named in each of said letters patent and each of the said patentees is the first and original inventor thereof and at all times was using reasonable diligence in adapting and perfecting the same and the respective places of residence of said patentees, are, as plaintiff is informed and verily believes, respectively set forth in said letters patent, to wit:

Patent No.	Date of Patent.	Patentee.
64,452	May 7, 1867	F. Schweikhart
107,950	Oct. 4, 1870	H. Anderson
111,292	Jan. 24, 1871	F. Windhausen
394,921	Dec. 18, 1888	A. Hallowell
395,691	Jan. 8, 1889	F. Carlisle
382,155	May 1, 1888	C. C. Hanford
430,881	June 24, 1890	J. Popper
444,558	Jan. 13, 1891	J. Klein
477,755	June 28, 1892	G. E. Hanisch
481,955	Sept. 6, 1892	F. Kaiser
537,392	Apr. 9, 1895	F. H. Moore
594,440	Nov. 30, 1897	J. Stocker et al.
621,718	Mar. 21, 1899	J. M. Seymour, Jr.
626,390	June 6, 1899	J. McCreery
638,931	Dec. 12, 1899	R. D. Kimball et al.
649,573	May 15, 1900	G. K. Fischer et al.
653,418	July 10, 1900	W. R. Jennison
661,192	Nov. 6, 1900	W. Ostendorf
666,361	Jan. 22, 1901	I. D. Snead
693,625	Feb. 18, 1902	H. B. Schmidt
700,990	May 27, 1902	Stocker
710,857	Oct. 7, 1902	W. Griesser
746,277	Dec. 8, 1903	J. N. Brenman
808,050	Dec. 19, 1905	F. Hauswirth
707,042	Aug. 12, 1902	C. H. Wheeler et al.
821,561	May 22, 1906	C. H. Wheeler et al.
836,702	Nov. 27, 1906	W. Ostendorf
890,332	June 9, 1908	E. Burhorn
844,336	Feb. 19, 1907	H. L. Doherty
826,658	July 24, 1906	W. W. Harris
412,886	Oct. 15, 1889	Hopper [51]

Patent No. (cont.)	Date of Patent.	Patentee.
902,875	Nov. 3, 1908	B. F. Hart, Jr.
907,874	Dec. 8, 1908	Haverstick
973,163	Oct. 18, 1910	E. Burhorn
978,986	Dec. 20, 1910	E. Burhorn
1,014,371	Jan. 9, 1912	E. Burhorn
1,050,909	Jan. 21, 1913	F. Bauer
1,052,226	Feb. 4, 1913	W. D. Douglas
1,128,513	Feb. 16, 1915	G. A. Richards
1,118,267	Nov. 24, 1914	E. Burhorn

—and in addition to the above-mentioned patents, plaintiff verily believes and alleges the fact to be that there are many others of which it is not at this time advised and prays leave to insert the same herein or to set the same up by an amended answer when the same become known.

32. As a further separate and special defense and reply plaintiff alleges that the alleged invention attempted to be patented in and by the said alleged letters patent No. 1,334,515 was described in various printed publications prior to the alleged invention or discovery thereof by the said Carl F. Braun and more than two years prior to his application for said alleged letters patent therefor, to wit, in the several letters patent above set forth which were severally printed and published on the said dates respectively set forth at the city of Washington, D. C. and in various other publications, the names and places of publication of which are [52] at this time unknown to plaintiff but which it prays leave to set up by amendment to this answer and reply when the same are discovered and become known to plaintiff.

33. As a separate and special defense and reply the plaintiff alleges that the alleged invention attempted to be patented by the said Carl F. Braun in letters patent No. 1,334,515 and all of the subject matter thereof was known to and in open notorious public use by others than the said Carl F. Braun in the United States prior to the alleged invention or discovery thereof by him and for more than two years prior to his alleged application for the aforesaid alleged letters patent and among others by the said several patentees above mentioned and at the places of residence specified in their aforesaid letters patent and at and prior to the dates of the said several patents and by Barton H. Coffey of and at the city of New York, in the State of New York, by Louis A. Phillips of and at the city of New York in the State of New York and by others whose names and addresses and the places of use are at this time unknown to plaintiff but which it prays leave to insert herein by amendment when discovered.

34. For a further separate and special defense and reply plaintiff alleges that for the purpose of deceiving the public, the description and specification filed by the said Carl F. Braun in the Patent Office in his application for the said letters patent No. 1,334,515 was made to contain less than the whole truth relative to his invention or alleged discovery or more than is necessary to produce the desired result and further that the said alleged invention and the said alleged patent is lacking in novelty or utility and the quality of invention and

the said letters patent No. 1,334,515 and each of the claims thereof are invalid in all respects. [53]

35. For a further separate defense and reply plaintiff alleges that the said Carl F. Braun was not the original or first or sole or any inventor or discoverer of the alleged invention alleged to be patented in and by the said alleged letters patent No. 1,442,784 or any or all of the claims thereof or of any material or substantial part thereof, but that prior to the alleged invention thereof by the said Carl F. Braun and more than two years prior to the filing of the application for the said letters patent, the said invention and every material and substantial part thereof had been shown, described and patented in and by each of the letters patent herein above set forth and in each of the following letters patent of the United States of America and had been invented by each of the patentees named in each of the said letters patent and each of the said patentees is the first and original inventor thereof and at all times was using reasonable diligence in adapting and perfecting the same and the respective places of residence of said patentees are as plaintiff is informed and believes, respectively set forth in the said letters patent, to wit:

No. of Patent	Date	Patentee
430,881	June 24, 1890	J. Popper
594,440	Nov. 30, 1897	J. Stocker et al.
621,718	Mar. 31, 1899	J. M. Seymour, Jr.
649,593	May 15, 1900	G. K. Fischer et al.
661,192	Nov. 6, 1900	W. Ostendorf
693,625	Feb. 18, 1902	H. B. Schmidt
710,857	Oct. 7, 1902	W. Griesser
821,561	May 22, 1906	C. H. Wheeler, et al.
902,875	Nov. 3, 1908	B. F. Hart, Jr.
973,163	Oct. 18, 1910	E. Burhorn
122,937	Jan. 23, 1872	A. Derrom

[54]

826,390	June 6, 1899	J. McCreery
1,228,207	May 29, 1917	B. F. Hart

—and in addition to the above-mentioned patents, plaintiff verily believes and alleges the fact to be that there are many others of which it is not at this time advised and prays leave to insert the same herein or to set the same up by an amended answer and reply when the same become known.

36. As a further separate and special defense and reply plaintiff alleges that the alleged invention attempted to be patented in and by the said alleged letters patent No. 1,442,784 was described in various printed publications prior to the alleged invention or discovery thereof by the said Carl F. Braun and more than two years prior to his application for said alleged letters patent therefor, to wit, in the several letters patent above set forth which were severally printed and published on the said dates respectively set forth at the city of Washington,

D. C., and in various other publications the names and places of publication of which are at this time unknown to plaintiff but which it prays leave to set up by amendment to this answer and reply when the same are discovered and become known to plaintiff.

37. As a separate and special defense and reply the plaintiff alleges that the alleged invention attempted to be patented by the said Carl F. Braun in letters patent No. 1,442,784 and all of the subject matter thereof was known to and in open notorious public use by others than the said Carl F. Braun in the United States prior to the alleged invention or discovery thereof by him and for more than two years prior to his alleged application for the aforesaid [55] alleged letters patent and among others by the said several patentees above mentioned and at the places of residence specified in their aforesaid letters patent and at and prior to the dates of the said several patents and by Barton H. Coffey of and at the city of New York, in the State of New York, by Louis A. Phillips of and at the city of New York in the State of New York and by others whose names and addresses and the places of use are at this time unknown to plaintiff but which it prays leave to insert herein by amendment when discovered.

38. For a further separate and special defense and reply plaintiff alleges that for the purpose of deceiving the public, the description and specifications filed by the said Carl F. Braun in the Patent Office in his application for the said letters patent

No. 1,442,784 was made to contain less than the whole truth relative to his invention or alleged discovery of more than is necessary to produce the desired result and further that the said alleged invention and the said alleged patent is lacking in novelty or utility and the quality of invention and the said letters patent No. 1,442,784 and each of the claims thereof are invalid in all respects.

WHEREFORE, plaintiff prays a decree of this Court that the setoff, counterclaim and cross-complaint of the defendant be dismissed and for the relief prayed in its bill of complaint with costs and such other and further relief as to this Court may seem proper and in accordance with good conscience.

THE COOLING TOWER CO., INC.

By A. B. TAPLIN,

President.

[Seal]

Attest: J. H. TAYLOR,

Secretary.

ASHLEY and FOULDS,

EDWARD A. O'BRIEN,

Solicitors and Counsel for Plaintiff.

[Endorsed]: Filed Apr. 14, 1923. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Receipt of copy of within answer admitted this 14th day of April, 1923.

CHAS. E. TOWNSEND,

WM. A. LOFTUS,

Attys. for Defendant. [56]

In the Southern Division of the United States District Court, for the Northern District of California, Second Division.

IN EQUITY—No. 923.

For Infringement of Letters Patent No.
1,010,020.

COOLING TOWER COMPANY, INC. (a Corporation),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

DEPOSITIONS.

Depositions on behalf of plaintiff taken pursuant to notice and the law and practice of this court before John J. Coyle, Notary Public, at Room 900 No. 120 Liberty Street, Borough of Manhattan, City of New York and State of New York on June 6th, 1923, at ten A. M.

Present: WILLIAM F. ASHLEY, Jr., of Counsel
for Plaintiff.

FREDERICK S. DUNCAN, of Counsel
for Defendant.

Adjourned by consent to Saturday, June 9, 1923,
at the same hour and place. [57]

(Deposition of Barton H. Coffey.)

June 11, 1923.

Met pursuant to adjournment.

Present: ANDREW FOULDS, Jr., of Counsel for
Plaintiff.

FREDERICK S. DUNCAN, of Counsel
for Defendant.

DEPOSITION OF BARTON H. COFFEY, FOR
PLAINTIFF.

BARTON H. COFFEY, witness on behalf of
the plaintiff, being first duly sworn, deposes and
says:

Direct Examination by Mr. FOULDS.

Q. 1. Please state your name, age, residence
and occupation?

A. Barton H. Coffey, age, 58; residence, 136
DeHart Place, Elizabeth, New Jersey; Mechanical
Engineer.

Q. 2. Are you connected with the Cooling
Tower Co., the plaintiff, and if so, in what capa-
city? A. I am the chief engineer of the company.

Q. 3. How long have you occupied that position?

A. Since 1915.

Q. 4. Since 1915 when the company was incor-
porated? A. Yes.

Q. 5. Prior to that time were you connected with
the Mitchell-Tappen Company? A. Yes. [58]

Q. 6. For how long a time had you been con-
nected with the Mitchell-Tappen Co.?

A. From 1911.

Q. 7. Was the Mitchell-Tappen Co. at that time

(Deposition of Barton H. Coffey.)

engaged in the sale of atmospheric cooling apparatus?

A. They began in 1911 to manufacture and sell atmospheric cooling apparatus.

Q. 8. Did the Cooling Tower Co., take over that branch of the business of Mitchell-Tappen Co.?

A. They did.

Q. 9. What had the Mitchell-Tappen Co. done in relation to the development of cooling apparatus prior to the organization of the Cooling Tower Co.?

A. They experimented and tested atmospheric cooling apparatus.

Q. 10. In what territory did the Mitchell-Tappen Co. do business?

A. They did business in the whole United States, I think in Mexico, possibly in Cuba. I am not prepared to state exactly without consulting the detailed sales record of the Mitchell-Tappen Co. as my recollection of exactly where the Mitchell-Tappen Co. left off and the Cooling Tower Co. began with reference to the sales is not clear.

Q. 11. What means did the Mitchell-Tappen Co. employ to create a demand for its product? [59]

A. They advertised extensively, they solicited extensively and they made extraordinary efforts to give the best advice to their customers they knew how and to furnish the best material they knew how so that every customer should be a satisfied customer and thus produce a form of advertising that in the long run is the most valuable.

Q. 12. Did the company have sales agents and representatives throughout the country?

(Deposition of Barton H. Coffey.)

A. They did.

Q. 13. Did the company also use catalogs and descriptive literature? A. They did.

Q. 14. Are you the patentee of the patent in suit?

A. I am.

Q. 15. Have you also taken out other patents in the same art? A. I have.

Q. 16. What experience and training have you had in the cooling tower art?

A. I first came in contact with atmospheric cooling I think in 1907 or 1908 through a connection I had with Edwin Burhorn who was then beginning the exploitation of the Ostendorff atmospheric cooling tower, which was, I believe, the first serious attempt to introduce this type of [60] tower in the United States. Ostendorff was one of the pioneer inventors of this type of apparatus. I became very much interested in the atmospheric cooling problem from a scientific standpoint. The condition of the science at that time being almost entirely rule of thumb. In order to get data upon which some form of mathematical theory could be produced, I made numerous tests of towers then in existence and closely observed all I had the opportunity of visiting in actual operation. I have continued my study of this subject which is a very baffling one and which is not yet on a sound theoretical basis to date.

The main objects of a correct mathematical theory of atmospheric cooling are two. First: With a given quantity of air and a given quantity of water, at a certain temperature, to produce a

(Deposition of Barton H. Coffey.)

maximum possible cooling effect. Second: To be able to predict accurately what cooling effect can be obtained under the various atmospheric conditions and ranges of cooling so that cooling guarantee can be made on a sound basis and carried out with the apparatus specified. In the pursuit of this objective I have spent and am still spending all the time I have available on the study and examination of all types of atmospheric cooling, atmospheric forced draft and chimney cooling towers, spray ponds, etc.

Q.17. To what extent have the cooling towers of the plaintiff gone in to use? [61]

(By Mr. DUNCAN.)

Question objected to as irrelevant unless confined to cooling towers embodying the invention of the patent in suit.

A. I believe some 500 or 600 atmospheric towers of the Cooling Tower Company have been put into use throughout continental United States and our possessions, and that is the Phillipines, Cuba, Mexico, South America and Europe.

Q.18. Have these cooling towers been equipped with the device of the patent in suit?

A. They have.

Q.19. Since the patent in suit, No. 1,010,020 was issued November 28, 1911, has the plaintiff and its predecessors employed this device in its cooling towers? A. They have.

Q.20. What are the particular advantages of the device of the patent in suit?

(Deposition of Barton H. Coffey.)

A. The particular advantages are two:

First. The deck as made up in accordance with the patent is, with the exception of the fastening, entirely wood which experience has shown to be the most reliable material for this purpose. Second: The introduction of wood instead of metal for deck elements, however, brings in certain disadvantages. These are the warping [62] and twisting and general tendency of wood to get out of line. The effect of this is to close up some of the spaces between the deck members and open others wide, thus impairing the distribution through the tower and so lowering its efficiency. To correct this defect, and maintain a uniform opening between the deck members, the groove and spline system of spacing as shown in the patent was devised. This I consider the second advantage. The third advantage is the two grooves shown at the bottom of the drip bar, the effect of which is to cause the water falling on each bar to divide up into two lines of drops instead of one, thus greatly increasing the subdivision of the water, another factor upon which the efficiency of the apparatus depends

Q. 21. Please describe briefly the construction and operation of an atmospheric cooling tower of the type referred to in the patent in suit?

A. The water to be cooled enters a distributing device at the top of the tower. This device in general forms a part of the supply pipe system. After leaving this distributing device, the water

(Deposition of Barton H. Coffey.)

enters a deck composed of a series of gutter section wood bars, overflows these bars in an approximately uniform film which flows down the sides of the bar, turns the bottom edge and at the two grooves, is transformed into drops and this is uniformly distributed upon another deck composed of approximately flat top bars. [63]

A splash is formed on this deck having the appearance of foam and is a very valuable cooling surface, water then drops to another flat top deck and the cycle is repeated from deck to deck until the water finally reaches a pan or basin from which it flows to the point where it is used. While the water is thus passing from deck to deck in the form of fine drops, and spray, air passes horizontally between the decks, absorbs heat from the water and passes out on the side opposite to which it entered. The water is thus cooled progressively from deck to deck and reaches the final temperature desired in the basin referred to. This is a rough description of the cooling process common to all atmospheric cooling towers.

Q. 22. What is the object sought to be obtained in a cooling tower of this type?

A. The object is to reduce the temperature of the maximum amount of water possible to the lowest point possible.

Q. 23. How is this device useful in commercial establishments?

A. In large numbers of industries, heat is a by-product that must be disposed of. In refrigera-

(Deposition of Barton H. Coffey.)

tion the heat taken out of the cooled substances plus the work of compression passes out through the ammonia condenser into the cooling circulation. Enormous quantities of water are required for this circulation, the cost of which is prohibitive [64] and in many places it is impossible to obtain it at any cost. The atmospheric cooling tower, by re-cooling the water of the circulation, renders it possible to operate plants in arid regions where water cannot be obtained and to eliminate heavy water bills where city water would have to be purchased. In general, waste heat is being discharged in enormous volumes in power plants, oil refineries, distilleries, and other industrial processes, and is now being taken care of by cooling towers.

Q. 24. In November, 1914 was your company engaged in producing these cooling towers?

A. Yes.

Q. 25. Did the Mitchell-Tappen Co. receive a letter from the defendant dated November 21, 1914?

(By Mr. DUNCAN.)

Question objected to unless the witness has personal knowledge of any such correspondence.

A. They did.

Q. 26. Will you produce it?

A. I produce it.

(The letter produced by the witness is offered in evidence and marked Plf. Exhibit 1.—J. J. C.)

(Deposition of Barton H. Coffey.)

Q. 27. Are you familiar with the tower known as the Alberger tower? A. Yes. [65]

Q. 28. Will you please explain what it is?

A. The Alberger tower is a forced draft type, is generally circular in form, shell being made of steel, the distributor is of rotating or Barker's Mill type discharging upon a checker work filling consisting of boards on edge in layers, the boards in each adjacent layer being in opposite direction, thus forming a checker work. The water on leaving the checker work, drops into a basin below. In the space between the bottom of the checker work and the basin, a fan discharges air under pressure, which ascends through the checker-work thus producing a counter current contact between air and water. The air escapes at the top of the checker-work to the atmosphere carrying away with it the heat abstracted from the water.

Q. 29. What is meant by the term "forced draft" as used in your answer?

A. Forced draft means that the air necessary to produce cooling effect is blown or forced with mechanically operated fans as opposed to currents of air produced by winds or breezes or by convective action as in a chimney.

Q. 30. Are the cooling towers illustrated in the patent in suit 1,010,020, and the defendant's patent, 1,334,515 and 1,442,784 of the forced draft type? A. They are not. [66]

Q. 31. Following this letter of Nov. 21, 1914, written by C. F. Braun & Co., the defendant, to

(Deposition of Barton H. Coffey.)

Mitchell-Tappen Co. were arrangements made with C. F. Braun & Co., to sell the Mitchell-Tappen Co. cooling towers?

(By Mr. DUNCAN.)

Question objected to in case the suggested arrangement were in writing, unless the written documents are produced and if not in writing, objected to unless the alleged arrangement is within the personal knowledge of the witness and his answer is confined to his own personal dealings with the defendant.

A. I know arrangements were made with Mr. Braun but I did not personally carry on negotiations, the details of which I do not remember, and therefore cannot answer this question in detail.

Q. 32. Do you know which officer of your company had charge of that transaction?

A. The treasurer, Mr. Phillips has charge of that transaction.

Cross-examination by Mr. DUNCAN.

X Q. 33. What other patents have you taken out relating to cooling towers beside the patent in suit?

A. I took out a patent 1,158,107 covering [67] frame work of an atmospheric tower, and patent 1,027,184 covering a chimney draft tower and others relating to distributors for atmospheric towers and possibly others that I do not recollect.

XQ. 34. Was the patent in suit the first cooling patent that you took out?

A. I think it was. I don't recollect any other just now.

(Deposition of Barton H. Coffey.)

XQ. 35. I suppose the Cooling Tower Co. owns a number of other patents besides those taken out by you?

A. I don't think they do own any others except mine, on cooling towers.

XQ. 36. Did the Mitchell-Tappen Co. own any other patents on cooling towers except the Coffey patents?

A. I do not remember any other patents but mine.

XQ. 37. Did the Mitchell-Tappen Co. own the Burhorn patents? A. Not of my knowledge.

XQ. 38. During the period of your connection with the Mitchell-Tappen Co. and with the Cooling Tower Co. you have in the course of your experiments devised a number of improvements in their cooling towers haven't you?

A. That is what I have been trying to do.

XQ. 39. You have designed a number of modifications or [68] changes from time to time that have been adopted by the Mitchell-Tappen Co. or the Cooling Tower Co. in their cooling towers have you not? A. Yes.

XQ. 40. When do you understand the first cooling tower was made by the Mitchell-Tappen Co. or the Cooling Tower Co. embodying the invention of your patent in suit, 1,010,020?

A. In 1911 or 1912.

XQ. 41. Has the Mitchell-Tappen Co. and the Cooling Tower Co. built all of its subsequent towers on exactly the same design as the first tower in

(Deposition of Barton H. Coffey.)

1911 or 1912 or has it built subsequent towers embodying other inventions or changes designed by you? A. It changes every year.

XQ. 42. And some of these other changes have been covered by other patents to you than the patent in suit, is that right?

A. No, the changes I refer to are improvements in engineering practice.

XQ. 43. Do I understand that the only patent that the Cooling Tower Co. now owns inventions of which are included in your present cooling towers is your original patent 1,010,020? [69]

A. No.

XQ. 44. What other patents does the Cooling Tower Co. own, inventions of which are included in your present cooling towers?

A. 1,058,107. I will look up further information on this and answer later.

XQ. 45. When you say that the cooling towers made by the plaintiff contained the invention of the patent in suit, exactly what part of the construction are you referring to in that answer?

A. The decks.

XQ. 46. In what particular feature or features of the deck do you consider to involve the invention of the patent in suit? A. The clamp.

XQ. 47. Please point by reference to the patent in suit the clamp that you referred to in your answer?

A. I should have said splines in my last answer.

XQ. 48. Now, do I understand you correctly, that

(Deposition of Barton H. Coffey.)

the only feature of your patent 1,010,020 which you consider present in the cooling tower company's cooling towers is the splines? A. No.

XQ. 49. Please make a comprehensive statement of all [70] features of plaintiff's patent 1,010,020 that you find to be present in the cooling towers made by the Cooling Tower Co?

A. The splines and the grooves. On the bottom of the bars.

XQ. 50. Now, please refer to the plaintiff's patent, and point out by reference to the drawings or description those particular features which you say are present in the plaintiff's cooling towers?

A. The distributing bar, fig. 3 at the top of the tower is made as shown in the patent and is now in use. The splash bar, fig. 2, is made as shown and is now in use with the following addition, that is a corrugated top, not shown in this patent.

Recess till 2 P. M.

A. (Continued.) The splines for keeping the bars in alignment are still in use and the bars are also fastened at their ends although not as shown in the patent.

XQ. 51. Did the Cooling Tower Co. or its predecessor Mitchell-Tappen Co. ever make a cooling tower with the ends of the drip bars fastened to the frame in the exact manner shown in the patent in suit?

A. I think we have. I would like though to refresh my memory on that point.

(Deposition of Barton H. Coffey.)

XQ. 52. If you ever made such a cooling tower how long ago was it? [71]

A. We are making them now and have been making them for six or seven years. This is a small tower that we call a towerette, but I cannot, without looking at the plans, refresh my memory how the fastening at the ends is arranged. As I recollect, however, these bars are in a frame and very similar to what is shown in this patent, Fig. 6, with screws going into the end of the bar.

XQ. 53. When in answer to question 18, you stated that cooling towers made and sold by your company have been equipped with "the device of the patent in suit" what particular features did you have in mind as covered by the phrase "the device of the patent in suit"? A. Our patent.

XQ. 54. What particular features of your company's cooling towers did you have in mind when you stated that they were equipped with the device of the patent in suit? A. The drip bars.

XQ. 55. And what features connected with the drip bars do you consider to be the device of the patent in suit?

A. The method of fastening and holding the bars in place.

XQ. 56. And what is that method that is the device of the patent in suit?

A. That device is the splines 7, Fig. 4 and pins or screws 10, Fig. 6. [72]

XQ. 57. Does your company now use any metal in the manufacture of its cooling towers?

(Deposition of Barton H. Coffey.)

A. Yes.

XQ. 58. Do you use cooling towers now where the metal is exposed to the liquid? A. Yes.

XQ. 59. Which is your regular construction now, the metal cooling tower or the all wood cooling tower?

A. We have neither all metal nor all wood, all our towers are combinations of the two.

XQ. 60. Have you one of your current catalogs here, Mr. Coffey?

A. I produce one of our recent catalogs.

XQ. 61. I gather from this catalog that you have produced which is copyrighted 1921, that in many instances you use steel frames and metal louvers and other metal parts which are exposed to the liquid, is that correct? A. Yes.

XQ. 62. Have you been able to refresh your recollection as to the patent your company is using in the manufacture of its towers?

A. Our catalog shows the following patents in the United States:

Nov. 28, 1911, No. 1, 010, 020;

May 21, 1912, No. 1,027,184;

Oct. 26. 1915, No. 1,158,107;

Feb. 8, 1921, I have not got the number of this patent here but I think it is a distributing patent. [73] The list also says, patents pending, and these probably cover the gravity and distributors that we also use.

XQ. 63. Your catalog shows various differing de-

(Deposition of Barton H. Coffey.)

tails of construction not shown in the patent in suit, 1,010,020, does it not?

A. It shows the details of other parts of the tower than the deck system. It shows also however, on page 2, section A, the details of our deck system.

XQ. 64. You make other forms of cooling towers than the particular one shown in this catalog do you not?

A. We advertise forced draft and chimney towers, but have not as yet been successful in putting any in.

XQ. 65. You do, however, make atmospheric cooling towers having various details of construction different from the particular ones illustrated and described in your catalog which you have just produced, do you not? A. No.

XQ. 66. I wonder if you understood my last question correctly, do you mean to say that this catalog which you have just produced which is marked catalog No. 9B, copyright 1921 contains illustrations and descriptions of every form of atmospheric cooling tower which your company was making during 1921 or has made since?

A. I believe it does. [74]

XQ. 67. Did your company design and build the atmospheric towers for the Gay Engineering Company in Los Angeles?

A. I am not sure whether they did or not. Our treasurer will be able to give you full information. I have nothing to do with the sales.

(Deposition of Barton H. Coffey.)

XQ. 68. What kind of a tower was your company or its predecessor making in 1914?

A. A composite type of tower, that is steel frame wooden decks and either wood or metallic louvers depending upon the demands of the customer or the fire regulations at the site.

XQ. 69. Do you recall exactly when the Cooling Tower Company was organized?

A. I think it was in 1915, but I don't remember the date.

XQ. 70. Prior to the organization of the Cooling Tower Co. was the Mitchel-Tappen Co. actually making and selling atmospheric cooling towers?

A. Yes.

XQ. 71. For how long prior to the formation of the Cooling Tower Co. had the Mitchell-Tappen Co. been making and selling Cooling Towers?

A. About four years.

XQ. 72. Had your company a large drafting or engineering force under your charge?

A. Quite a good size force. [75]

XQ. 73. Your company uses various frame constructions does it not, in making its atmospheric towers? A. Yes.

XQ. 74. And it uses various methods of attaching the slats or drip bars of the decks to the frame work, does it not? A. Yes.

XQ. 75. And it uses different forms and methods of supporting the louvers does it not? A. Yes.

XQ. 76. And it uses different feeding apparatus, does it not? A. If you mean distributors, yes.

(Deposition of Barton H. Coffey.)

XQ. 77. And it has made changes in the form or detail of the drip bars, does it not? A. Yes.

XQ. 78. When did your company adopt the corrugations on the top of the drip bar instead of the rounded or flat top of the drip bar?

A. I think in 1913, if I am not mistaken. I am not sure of the exact time without consulting the records [76]

Mr. COFFEY (Recalled).

Redirect Examination by Mr. FOULDS.

RDQ. 79. Do you recall writing a letter on behalf of Mitchell-Tappen Co. to the Shell Co. of California, April 5, 1915? A. Yes, I recall writing it.

RDQ. 80. Have you a copy of that letter, and if so, produce it.

Q. 81. Was this letter sent in the regular course of business of the Mitchell-Tappen Co.? A. Yes.

(The letter produced by the witness is marked Plaintiff's Exhibit 8 for Identification.—J. J. C.)

Q. 82. Have you the letter of the Shell Co. of California dated March 29, 1915?

A. It is in the files of the company.

Q. 83. Did you, on or about March 1st, 1915, on behalf of Mitchell-Tappen Co. write to C. F. Braun & Co?

A. This letter is not signed with my initials but I recall sending it, and I produce the carbon copy.

(The letter produced by the witness is marked Plaintiff's Exhibit 9 for Identification.—J. J. C.)

[77]

DEPOSITION OF LOUIS A. PHILLIPS, FOR
DEFENDANT.

LOUIS A. PHILLIPS, a witness on behalf of the defendant, being duly sworn, deposes and testifies as follows:

Q. 1. Please state your name, age, residence and occupation?

A. Louis A. Phillips, age 44; 32 Fraser Place, Hastings-on-Hudson, New York; Treasurer of the Cooling Tower Co.

Q. 2. How long have you been connected with the Cooling Tower Co., the plaintiff in this case.

A. Ever since its incorporation.

Q. 3. Do you recall when it was incorporated?

A. It must have been about 1915.

Q. 4. That company was incorporated for the purpose of taking over what business?

A. The cooling tower department of the Mitchell-Tappen Co.

Q. 5. Were you connected with the Mitchell-Tappen Co. prior to the incorporation of the Cooling Tower Co.? A. I was, as secretary.

Q. 6. For how long a time were you connected with the Mitchell-Tappen Co. prior to the incorporation of the plaintiff?

A. Since the incorporation of the Mitchell-Tappen Co. [78]

Q. 7. Can you tell when about that was?

A. In 1911 or 1912.

Q. 8. What have been your duties in both of these companies?

(Deposition of Louis A. Phillips.)

A. Executive and any business necessary for the transaction of the company.

Q. 9. Have you had any technical training?

A. Yes, I am a graduate of Stevens Tech. Institute with degree of Mechanical Engineer and before forming the Mitchell-Tappen Co. I was with Edwin Burhorn for about seven years, during all which time Edwin Burhorn was making and selling cooling towers. Prior to this, I was with the Pullman Company, the Niagara Falls Power Co. and the George A. Fuller Con. Co.

Q. 10. Did the Mitchell-Tappen Co. after its incorporation, do any advertising? A. Yes.

Q. 11. Have you any samples of its advertising?

A. Yes, a good many. I produce Bulletin No. 7 which was issued in the fall of 1913. We continually advertised in a publication known as Ice and Refrigeration, and from time to time in other papers such as the Engineering Record, Cold Storage and Ice Trade Journal, Southern Engineer, Brewer's Journal, Refrigerating World, American Brewer, [79] Power, and other trade papers.

Q. 12. Does this scrap-book which you produced contain specimens of your advertising with the correct dates? A. It does.

Q. 13.

(The scrap-book produced by the witness is marked Plaintiff's Exhibit 2 for Identification.—J. J. C.)

(The Bulletin, No. 7, produced by the witness

(Deposition of Louis A. Phillips.)

is offered in evidence and marked Plaintiff's Exhibit No. 3.—J. J. C.)

Q. 13. In or about the month of November, 1914, did you receive a letter from C. F. Braun & Co?

A. Yes.

Q. 14. Who had charge of the C. F. Braun & Co. Correspondence in this matter. A. I did.

Q. 15. Have you the letter referred to?

A. I have.

Q. 16. Please produce it?

(The witness produces letter from C. F. Braun & Co. to Mitchell-Tappen Co. dated Nov. 14, being Defendant's Exhibit 1.—J. J. C.) [80]

Q. 17. So far as you recall was this letter of Nov. 21, 1914, the first communication received by your company from C. F. Braun & Co.? A. It was.

Q. 18. Did you answer that letter?

A. We did. We answered the letter under date of November 22, 1914.

Q. 19. Have you a carbon copy of the letter which you wrote? A. I have and I produce.

Q. 20. The initials at the foot of this letter are P/W. A. I personally wrote that letter.

Plaintiff's counsel calls upon defendant's counsel to produce the original letter dated Nov. 27, 1914, written by Mitchell-Tappen Co. to C. F. Braun & Co.

(The carbon copy of the letter produced by the witness is marked Plaintiff's Exhibit No. 4 for identification.—J. J. C.)

(Deposition of Louis A. Phillips.)

Q. 21. Was there any enclosure sent with this letter Plaintiff's Exhibit 4 for identification?

A. Yes, Bulletin No. 7.

Q. 22. Did you receive a reply from C. F. Braun & Co?

A. Yes, under date of Dec. 24, 1914, which I produce. [81]

(The letter produced by the witness is offered in evidence and marked Plaintiff's Exhibit No. 5.—J. J. C.)

Q. 23. Did you write in answer to this letter Plaintiff's Exhibit No. 5?

A. Yes, under date of Dec. 30, 1914, a copy of which I produce.

(The letter produced by the witness is marked Plaintiff's Exhibit No. 6 for identification.—J. J. C.)

Q. 24. What followed the sending of this letter marked Plaintiff's Exhibit 6 for identification?

A. Having learned that Mr. Braun was coming to New York, we wrote him under date of Feb. 27, 1915, that we would be glad to see him and that we had a number of inquiries from his part of the country and could not handle them in the personal way we would like to.

Q. 25. Have you a copy of that letter?

A. I have, and I produce it.

(The letter produced by the witness is marked Plaintiff's Exhibit No. 7 for identification.—J. J. C.)

Q. 26. Do you recall receiving an inquiry from California the early part of April, 1915? [82]

(Deposition of Louis A. Phillips.)

A. I do from the Shell Co. of California.

Q. 27. What did you do in answer to that inquiry?

A. I turned it over to our chief engineer for reply.

Q. 28. Who was the chief engineer?

A. Mr. B. H. Coffey.

Q. 29. Have you a copy of his letter?

A. I have. It is dated April 5, 1915, and I produce it.

(The letter produced by the witness is marked Plaintiff's Exhibit 8 for identification.—J. J. C.)

Q. 30. Did you notify C. F. Braun & Co. of the inquiry received from the Shell Co.? A. We did.

Q. 31. How did you communicate to C. F. Braun & Co. this information?

A. By letter dated April 21, 1915, written by our Mr. B. H. Coffey.

Q. 32. Have you a copy of that letter?

A. I have, and I produce it.

(The letter produced by the witness is marked Plaintiff's Exhibit 9 for identification.—J. J. C.)

Q. 33. As a result of this, do you recall whether a Mitchell-Tappen Co. cooling tower was sold to the Shell Company? [83]

A. I do, and a second duplicate tower.

Q. 34. Were these towers erected by C. F. Braun & Co., the defendant? A. They were.

Q. 35. Did you receive a photograph showing the tower after erection? A. We did.

Q. 36. Have you the photograph?

A. I have, and I produce it.

(Deposition of Louis A. Phillips.)

(Photograph produced by the witness is offered in evidence and marked Plaintiff's Exhibit 10.— J. J. C.)

Q. 37. From whom did you receive this photograph Plaintiff's Exhibit 10?

A. I think it was forwarded by Mr. Braun although it may have been forwarded by the Shell Company.

Q. 38. Can you refresh your recollection by reference to the correspondence?

A. Yes. I have a letter from C. F. Braun & Co. dated February 17, 1916, stating that he is enclosing two photographs of the Shell Towers.

(The letter produced by the witness is offered in evidence and marked Plaintiff's Exhibit 11.— J. J. C.) [84]

Q. 39. Do you recall any particular use made by Braun & Co. of the photograph of your towers at the Shell plant?

A. Yes, I recall the pamphlet issued by Braun and showing picture of our towers, at the Shell plant.

Q. 40. Have you a copy of that pamphlet?

A. I had a copy but so far have not been able to locate it.

Q. 41. Are you familiar with the corporate seal of Mitchell-Tappen Co.?

A. I am, and as secretary have used it many times.

Q. 42. Can you identify the signature and seal on the paper which I show you? A. I can.

(Deposition of Louis A. Phillips.)

Q. 43. And was it affixed by order of the Board of Directors of that company? A. It was.

Q. 44. Do you know the signature affixed below the name Mitchell-Tappen Co. as president?

A. The signature is Mr. Mitchell's.

Q. 45. Was he at the time president of the company? A. He was and always has been.

(The paper referred to being assignment from Mitchell-Tappen Co. to the Cooling Tower Co. of the patent in suit, No. 1,010,020 dated May 17, 1915, is offered in evidence and marked [85] Plaintiff's Exhibit No. 12.—J. J. C.)

Q. 47. Is the structure shown in the photograph Plaintiff's Exhibit 10 the structure as sold by you?

A. Yes.

Q. 48. Do you know of any changes made in the structure?

A. Yes, one of the towers was considerably increased in size.

Q. 49. What knowledge have you with reference to this?

A. We received tests from the Shell Company showing addition to the length of one tower which increases its capacity. [86]

DEPOSITION OF BARTON H. COFFEY, FOR
PLAINTIFF (RECALLED).

Examination of BARTON H. COFFEY (Re-
sumed.)

Q. 83. Mr Coffey, have you done any original

(Deposition of Barton H. Coffey.)

research work in connection with the theory of cooling towers? A. I have.

Q. 84. Please state what you have done?

A. I have made a large number of tests of cooling towers in collaboration with Mr. George A. Horn, and we have examined the scientific record of attempts to formulate a cooling tower theory, as a result of this work we have presented a series of papers entitled "A Theory of Cooling Towers Compared with Results in Practice" a number of these papers have appeared under this title in A. S. R. E. Journal beginning in November, 1914.

Q. 85. Have you a copy of the A. S. R. E. Journal containing your article?

A. I have a copy of A. S. R. E. Journal for November, 1914, containing the first paper of the series presented by Mr. George A. Horn and myself.

(Copy of "A. S. R. E. Journal" published by American Society of Refrigerating Engineers, N. Y., N. Y., November, 1914, Volume 1, No. 1 and the article appearing therein on pages 78 to 95, inclusive, entitled "A Theory of Cooling Towers Compared with Results in Practice" by B. H. Coffey and George A. Horne is offered in evidence and marked [87] Plaintiff's Exhibit 13.—J. J. C.)

It is stipulated that the paper Plaintiff's Exhibit 13 offered in evidence was published in or about the month of November, 1914.

Q. 86. Have the results of your investigations been used by others in this industry?

A. I believe they have.

(Deposition of Barton H. Coffey.)

Q. 87. Can you refer to any particular instance?

A. I find that the C. F. Braun Co. Bulletin 101, page 17, and page 18 that the six paragraphs on page 17 and the first paragraph on page 18 referred to the development of a heat flow factor covering both the sensible heat and latent heat currents. To one without detailed knowledge of the scientific work of the art of atmospheric cooling a reading of the paragraphs cited would most likely lead to the conclusion that Mr. Braun and his engineering staff were the original developers of this important heat relation as it gives no credit to others for the work referred to. The development of this heat factor forms part of the original work of B. H. Coffey and George A. Horne presented before the American Society of Refrigerating Engineers at the mid-winter meeting of the society in their paper entitled "A Theory of Cooling Towers Compared with [88] Results in Practice."

Q. 88. What knowledge have you as to the early methods of supporting the louvers in cooling towers?

A. I have knowledge of the various methods of supporting louvers.

Q. 89. Please state what knowledge you have?

(By Mr. DUNCAN.)

Question objected to except as it calls for the personal knowledge of the witness and as it may relate to methods set up in the answer to the countersuit.

A. Louvers can be divided into two classes; close

(Deposition of Barton H. Coffey.)

louvers and large louvers. The methods of support naturally accommodate themselves and are consistent with the size and weight of the parts supported.

CLOSE LOUVERS.

The earlier towers both in wood and steel used almost exclusively to my knowledge close louvers, in Fig. 1 of the sketch I produce the method of supporting such louvers of wood is shown. The upright posts at the side of the tower are generally made wide enough to accommodate entire louver. The support consisted of blocks cut to the level of the louvers and nailed to the post with a space between each block on each side of the post forming a groove into which the louver was slipped, nailed fast. [89]

Fig. 2 shows the method of supporting close louvers of corrugated metal consisting of an upright steel member as a channel to which are riveted or bolted projecting angles to which are bolted the corrugated louvers. Fig. 3 shows the method of supporting metal louvers constructed of flat metal. In this case the supporting member consisted of a web plate of metal punched on the bevel of the louvers to which the louvers were bolted by flanging both ends of the louver plates.

LARGE LOUVERS.

I believe Mr. Hart was the originator of the large louver. His method is shown in Fig. 4 consisting of louvers of a size to cover the full space between his drip decks, these decks were in some cases six

(Deposition of Barton H. Coffey.)

feet five thus involving a very large louver. His method of support consisting of extending the members supporting his decks beyond the side post of his tower and attaching same to an inclined member which was in turn secured at its other end to the deck member below, thus forming a series of triangles whose third side consisted of his side post, to those inclined members the louvers consisting of either metal or wood were secured by appropriate fastening. Fig. 5 shows another method of supporting large louvers consisting in securing the inclined member to the ends of the deck members and supporting the outer end of the inclined [90] member by a pendent or tension member supported to a triangular member at the top which transmits the weight of the louvers to the main frame and its bracing. In Fig. 6 we have another method of supporting large louvers possessing some advantages over the ones shown previously. In this case the inclined members are attached both to the extended deck members and to an outside member thus forming a frame on the outside of the tower which is completely braced, that is composed of a series of complete triangles. The complete bracing as shown makes of the louver support as a whole a lattice girder, greatly stiffening the tower against wind pressure. This method of support is used of metal and wood louvers, steel frame and wood decks as shown. It will be observed on all the devices for supporting the large louvers that they uniformly consist of inclined members tied

(Deposition of Barton H. Coffey.)

in the main frame of the tower in various ways. Those are the only methods of support I know of.

Q. 90. In your answer you have referred to certain figures, to what paper did you refer?

A. I refer to the sketches I have just made and submit it.

Q. 91. (The two sheets of sketches made by the witness are offered in evidence and marked Plaintiff's Exhibit 14, Coffey Sketch.—J. J. C.) [91]

(By Mr. DUNCAN.)

The exhibit is objected to as incompetent and secondary.

Q. 91. Who is the Mr. Hart referred to in your answer?

A. Mr. Hart is the Franklin Hart of the Hart Cooling Tower Co. of New York.

Q. 92. Have you seen any of the Hart Towers containing the louver support shown in your sketch Exhibit 14, Fig. 4? A. I have.

Q. 93. Please state when and where you have seen this device?

A. I have seen them in New York, Jersey City, Scranton, Penn., and possibly other places during the last ten or twelve years.

Q. 94. Can you more particularly designate the location?

A. I saw one at the Huyler Candy factory, E. 18th Street, I think.

Q. 95. In New York City? A. Yes.

A. (Continuing.) Five or six years ago I think. I saw another one at Elder & Wells, I think at

(Deposition of Barton H. Coffey.)

West 17th Street [92] seven or eight years ago. I saw another at the Lackawanna Coal Storage Co. Scranton, Penn., seven or eight years ago.

Q. 95. Can you fix the dates more definitely?

A. In general, I know that Mr. Hart had been in the manufacturing of towers of this kind the last twelve or fourteen years.

Q. 96. Upon what do you base that statement?

A. By my memory and personal observation of the towers.

Q. 97. Can you fix definitely the first Hart tower of this type which you saw?

A. Yes, I think about 1910. I fix this by the period in which I joined the Mitchell-Tappen Co. in 1911. I had a short connection with Mr. Hart in a business way shortly prior to joining the Mitchell-Tappen Co. in 1911.

Q. 98. Will you please describe the tower seen by you at that time in reference to the louver support and give the location of the tower?

A. I recollect now that one of the towers I saw at that time was at the Lackawanna Coal Storage Co. referred to in a previous question.

Q. 99. Will you please describe the method of supporting the louvers in this Lackawanna Cold Storage Tower which you saw prior to 1911? [93]

A. The method of supporting the louvers was that shown in Fig. 4 of my sketch, Plaintiff's Exhibit 14.

Q. 100. Have you one of the old Hart catalogs?

A. I have.

(Deposition of Barton H. Coffey.)

Q. 101. Will you please produce it and state, if you know, when it was published?

A. I cannot state when it was published but it must have been subsequent to 1910 as I find testimonial letters from customers dated 1910 and printed in this catalog.

Q. 102. Can you fix the date of publication any more definitely than that? A. No.

Q. 103. Was that catalog published while you were with Hart?

Objected to as leading.

A. No, I do not think so. As I recollect this catalog came into our possession subsequent to my joining the Mitchell-Tappen Co.

(The catalog produced by the witness is marked Plaintiff's Exhibit 15 for Identification.—J. J. C.)

Q. 104. In answer to question 82 you said that the letter of the Shell Co. to Mitchell-Tappen Co. dated [94] March 29, 1915, was in the files of the company? Have you now found that letter, and if so, will you produce it?

A. I produce the two letters.

(The two letters produced by the witness both dated March 29, 1915, written by Shell Co. of California to Mitchell-Tappen Co. are offered in evidence and marked Plaintiff's Exhibits 16 and 17—J. J. C.)

Q. 105. You were asked yesterday about the date of incorporation of the Cooling Tower Co. have you ascertained the date of incorporation of that company? A. I have.

(Deposition of Louis A. Phillips.)

Q. 106. Please state the date.

A. April 21, 1915, under the laws of the State of New York.

Recess until 2 P. M. [95]

DEPOSITION OF LOUIS A. PHILLIPS, FOR
DEFENDANT (RECALLED).

LOUIS A. PHILLIPS (Resumed).

Q. 50. Do you recall whether C. F. Braun & Co. asked the Mitchell-Tappen Co. for an agency?

A. I do.

Q. 51. Please state the facts in connection?

A. C. F. Braun & Co. asked us for an agency and I have their letter of May 17, 1915.

(The letter produced by the witness is offered in evidence and marked Plaintiff's Exhibit 18.—J. J. C.)

Q. 52. Have you made an examination in your files for letter of the Union Oil Co. of California to Cooling Tower Co. dated June 14, 1918?

A. I have and have not been able to find the letter.

Q. 53. Do you recall whether such a letter was received?

A. Such letter was received and replied to by me under date of July 1, 1918.

Q. 54. Have you a carbon copy of the letter which you sent? A. I have, and I produce it.

Q. 55. Was this letter sent in the regular course of business of the Cooling Tower Co.?

A. It was. [96]

(Deposition of Louis A. Phillips.)

(The letter produced by the witness is offered in evidence and marked Plaintiff's Exhibit 19.— J. J. C.)

Q. 56. Will you explain the reason for the statement made by you in that letter?

A. The reason for my reply was that we had practically completed arrangements with Mr. Braun to represent us in the California district, on our standard agency agreement and after furnishing Mr. Braun with considerable engineering data, and other information, in regard to cooling towers, he went back on the arrangement we had outlined and suggested that he make the towers himself paying us a royalty of something like 2%, which we naturally refused and after that towers were built by Mr. Braun or the C. F. Braun & Co. so closely following our design and rated capacities that from the pictures we received it was hard to distinguish them from our own.

Adjourned to July, 13/23. [97]

New York, June 13, 1923.

Met pursuant to adjournment.

Present: Counsel as before.

LOUIS A. PHILLIPS (Resumed).

(Answer continued:) Mr. Braun or the C. F. Braun & Co. extended one of the cooling towers greatly increasing its capacity, such extension being made easily possible through our construction on the multiple unit principle. Our design was used for this extension evidently the material being

(Deposition of Louis A. Phillips.)

ordered from the erection plans furnished Braun for the original work. All the material for this extension was purchased by Braun and the installation made without in any way referring the matter to us and we were deprived of any profits which would come to us through this extra work and was a misappropriation of our patents and drawings

I also saw pictures and literature sent out by Mr. Braun or the C. F. Braun & Co. showing our towers at the Shell Co. plant and no reference in this literature to ourselves.

(By Mr. DUNCAN.)

Answer objected to as immaterial, incompetent and as based on secondary and hearsay. [98]

Q. 57. Where was this tower located?

A. At Martinez, Cal.

Q. 58. Do you refer to the Cooling towers erected at the plant of the Shell Co. of California?

A. I do.

Q. 59. Did your company have any knowledge of the extension or enlargement of this tower before the work was done? A. We did not.

Q. 60. How did you learn that the tower which you sold for erection at the plant of the Shell Co. of California had been added to or enlarged?

A. We had tests sent us by the Shell Co. and drawings showing the extended tower.

Q. 61. What was the tower "built for the Dutch Oil interests at their Shell Co. plant" to which you refer in your letter, Plaintiff's Exhibit 19?

(Deposition of Louis A. Phillips.)

A. The two towers which Braun erected at Martinez, California, according to our plans.

Q. 62. Are these the towers referred to in your answer to Q. 56? A. They are.

Q. 63. You state in your letter Plaintiff's Exhibit 19, that your experience in that case did not justify making Braun your regular representative, what did you mean [99] by that?

A. I meant that his way of handling the transaction with us in regard to making him our regular agent was not only not satisfactory but also such that I did not consider honorable.

Q. 64. To what particular action do you refer in your last answer?

A. To the fact that after appearing to be satisfied with our regular agency agreement he wanted to make towers himself to our design on a royalty basis of approximately 2%.

Q. 65. Do you recall what information you had which lead you to believe that Braun tried to procure additional business by using your design?

Objected to as calling for hearsay.

A. The information furnished us by the Shell Co.

Q. 66. Have you any knowledge of the early use of bracket supports for louvers of cooling towers?

A. I have.

Q. 67. What information have you?

A. On all installations made by B. Franklin Hart such bracket supports were used.

Q. 68. Can you describe the supports and the approximate early dates? [100]

(Deposition of Louis A. Phillips.)

A. Hart started building these towers in 1908 and I remember seeing one of his towers during the summer of 1913 at the plant of Elder & Wells, 17th Street & 9th Avenue, New York City, the tower having just been completed and I went to make an inspection of this job as an example of competitive work.

The louvers were supported by angles carried out horizontally from the deck level, the outer ends of these angles being held up by a diagonal brace running back to the tower frames. The tower was of the standard Hart construction.

Q. 69. I show you a copy of the patent to B. F. Hart, Jr., No. 902875 of November 3, 1908. Can you by reference to that patent describe this louver support?

Objected to as leading.

A. The louver support is not clearly shown in the patent drawing. This patent being taken out principally to show the method of leading off the water dripping from the lower. The method of support is the usual triangular support as used in construction work for centuries.

Q. 70. Will you please describe what you refer to as the usual triangular support?

A. A horizontal member fastened to a vertical member with an inclined member fastened to another point in [101] the horizontal member and carried back to a lower point in the vertical member.

Q. 71. Have you knowledge of the use of such a structure?

(Deposition of Louis A. Phillips.)

A. Yes, it is used in a great many ways; in fact is the form used for supporting the shelf on the wall and eaves on a house and a thousand such applications.

Cross-examination by Mr. DUNCAN.

XQ. 72. What was the construction of the deck members of the Hart tower that you saw at Elder & Wells in 1913?

A. They were made of galvanized iron formed in accordance with Hart's standard design.

XQ. 73. Did the method of construction of supporting the louver construction of the Hart tower that you saw in 1913 correspond with the method shown in Hart patent 902875?

A. The patent does not clearly show the method of supporting the louvers.

XQ. 74. Do you mean that it doesn't show any method of supporting the louver or that you cannot understand the method shown in the patent?

A. The patent does not cover louver supports.

XQ. 75. Do figures 3 and 4 of the Hart patent illustrate the method of supporting the louver?
[102]

A. They do not. They merely indicate it.

XQ. 76. In these figures 11 indicates the louvers, does it not? A. It indicates the louver.

XQ. 77. And 11' indicates a series of straps or braces bolted at one end to the frame of the tower and at the other end to the top of the louver, does it not? A. It does.

XQ. 78. And 11' also indicates, does it not, straps

(Deposition of Louis A. Phillips.)

or braces extending from the bottom of the louver to the lower level of the tower?

A. No. It indicates straps from both the lower and upper edges of the louver.

XQ. 79. These figures show two sets of independent straps or braces each marked 11', one set extending at a slight angle from the top of the louver to the frame of the tower at the point slightly above the top of the louver and the other set of straps or braces extending at a downward angle from the bottom of the louver to a point on the framework of the tower below the louver; is that right?

A. The straps shown in the figure are a part of the louver bracing. [103]

Q. 80. There are two independent sets of such straps or braces shown in Figures 3 and 4 of the Hart patent, are there not. One set connected with the top of the louver and the other set at the bottom?

A. One set at the top and the other set approximately halfway up. The patent drawing is not clear as to whether it refers to a strap or a part of the louver and the louver itself, if stiff enough, can be used as the inclined member of the triangular support as a part of the iron of support.

Q. 81. Now, I am asking you, Mr. Phillips, not what this Hart patent might show, but what it does show. Is it not a fact that the drawings of this patent show the louver terminating with the curved portion 15 below which is a strap or brace or sup-

(Deposition of Louis A. Phillips.)

port 11' which is separate from and bolted to the louver 11 at the lower end of the louver?

A. The patent drawing may show such construction but does not show the Hart method of supporting the louvers.

Q. 82. When did you first see a Hart Cooling Tower in actual form either under construction or finished?

A. The actual tower at the Elder & Wells Co. was seen by me and inspected during the summer of 1913 and prior to that I saw several Hart installations from the time they started to make installations in 1908.

Q. 83. Where did you first see an actual Hart tower? [104]

A. One of the first I saw was on a brewery. but I could not give the name and location without making inquiries.

Q. 84. Are you prepared to say, Mr. Phillips, that the regular Hart Cooling Tower construction in use from 1908 to 1918 did not involve a support for the louver which consisted of two separate sets of braces, one connecting the bottom of the louver with the framework of the tower below the bottom of the louver and the other connecting the upper portion of the louver with a higher part of the framework of the tower?

A. There may have been some slight differences in attaching the louvers to the tower, but invariably a horizontal brace was thrown out at about the deck level and this brace held in a horizontal position by

(Deposition of Louis A. Phillips.)

an inclined brace running back to the frame and in some cases there were strips running from the louvers to the frame at more points.

Q. 85. Are you prepared to say, Mr. Phillips, that the regular Hart construction during the period referred to in the last question did not involve one set of upwardly inclined louver braces near the top of the louver and a separate set of downwardly inclined louver braces connecting the bottom of the louvers with the framework of the tower at a point below the connection with the tower of the upper set of braces? [105]

A. In the towers I inspected there was an additional diagonal brace running from the horizontal support back to the tower frame.

Q. 86. The towers that you inspected did involve the construction pointed out in my last question, did they not? Even though they may have had additional braces for the louvers?

A. I do not remember any extra horizontal brace at the lower part of the louver.

Q. 87. My question did not involve an extra horizontal brace at the bottom of the louver, but referred only to a downwardly inclined brace at the bottom of the louver. With that understanding, please state whether the Hart towers that you inspected did not involve the louver supporting braces at the top and at the bottom of the louver such as specified in my question 85.

A. As I understand your question, not in the manner referred to.

(Deposition of Louis A. Phillips.)

Q. 88. Did not the Hart Towers that you inspected have one set of braces or supports connecting the top portion of the louver with an adjacent portion at the frame of the tower?

A. Perhaps I can answer your question by stating that the inclined member of the brace which followed the incline of the louver was fastened to the frame at the bottom of the [106] louver and was held out from the tower by the horizontal member at about deck level of the tower running out to a point near the top of the louver, although not at the very edge.

XQ. 89. When was it that, according to your understanding, Mr. Braun, as you say, practically agreed to the agency arrangement?

A. At the time of his call on us in New York.

XQ. 90. When was that?

A. I can only fix the date by the correspondence.

XQ. 91. Please do so.

A. During the year 1915.

XQ. 92. How do you fix that time?

A. By various letters such as his of May 17th, 1915, Plaintiff's Exhibit 18.

XQ. 93. And where was it or how was it that, according to your claim, Mr. Braun practically agreed to the agency arrangement? By correspondence or by personal conference in New York or elsewhere?

A. Largely through personal conference at our office, then at 50 Broad Street, New York City.

XQ. 94. During what time did the conferences at

(Deposition of Louis A. Phillips.)

your New York office take place at which you think Mr. Braun practically agreed to the agency arrangement?

A. I do not notice anything in the correspondence [107] fixing the exact date that Mr. Braun was in our office, but the correspondence indicates that it was some time during the period covered from April to June, 1915.

XQ. 95. Was it while Mr. Braun was at your New York office that he declined to enter into the agency or arrangement?

A. It is not quite clear in my mind whether it was just as he was leaving New York or whether the statement was made later or not.

XQ. 96. Was the proposed agency arrangement as desired by you covered by correspondence, and if so, can you produce the correspondence?

A. It was and we sent him a copy of our standard agency agreement.

XQ. 97. Have you produced and put in evidence the letters covering your correspondence in regard to the proposed agency arrangement?

A. I do not think all our correspondence with Braun in regard to the agency matter have been put in evidence.

XQ. 98. Have you any letter from Mr. Braun declining the agency proposition made by you?

A. Yes, we had a letter returning the agency agreement made out for him.

XQ. 99. What is the date of that letter, please?

[108]

(Deposition of Louis A. Phillips.)

A. I cannot find it at this time.

XQ. 100. You have your letter files of correspondence with Mr. Braun present, have you not?

A. A large portion.

XQ. 101. And before making your answer to question 99, you spent considerable time going through the correspondence files, did you not? A. I did.

XQ. 102. Are you perfectly sure that Mr. Braun declined the agency arrangement by letter or did he decline it at your office in New York?

A. To the best of my recollection, the final rejection was in a letter sending back the agency agreement to us.

XQ. 103. And that was before he came to New York, was it not? A. No, after.

XQ. 104. When and how did you discuss with Mr. Braun the arrangement that you described as building your towers on a royalty basis? Was that by correspondence or by personal interview and in either case, when?

A. My recollection of that particular point is not clear and as I before stated it may have been just as he was leaving New York or it may be by letter written afterwards. [109]

XQ. 105. When was it that you sold the two Shell Oil Co. towers that you have testified about?

A. In May, 1915.

XQ. 106. To whom were those sold by your company?

A. They were sold to C. F. Braun & Co., that is we entered into arrangements with C. F. Braun &

(Deposition of Louis A. Phillips.)

Co. to buy the lumber locally, and the metal parts of the tower from us in New York.

XQ. 107. And the Braun Co. paid you for such portions of the towers as you furnished?

A. Yes.

XQ. 108. Have you the contract or letters covering the contract in regard to the purchase by Braun of those two towers?

A. I have a telegram from the C. F. Braun & Co. dated May 10th, 1915, received by us on May 11th, constituting the order.

XQ. 109. Have you got your reply to that telegram? And have you also the letter from Braun to you mentioned in the telegram and your reply to that letter?

A. I presume we have and can be found in the files. [110]

XQ. 110. Do I understand that you complain of the alleged fact that Braun & Co. enlarged or had something to do with the enlargement of one or more of the Shell Oil Company's cooling towers that were originally furnished in part by you to Braun & Co. in the early part of 1915, it being your belief that the enlargement included features covered by your patents? A. Yes.

XQ. 111. And what features included in such enlargement do you claim to be an infringement of your patents in suit?

A. The parts referred to in the patent in suit are the drip bars and the way they are splined together although I also had in mind the use of

(Deposition of Louis A. Phillips.)

our drawing, and the steel frame supporting the louvers.

XQ. 112. Do you charge the defendant in this case with having had anything to do with the erection of any other towers and the two Shell towers or their enlargements that embody inventions of your patent in suit?

Objected to on the ground that this is not a proper method of obtaining the information sought and the opinion of the witness as to what constitutes infringement is irrelevant and immaterial and not binding on the plaintiff.

A. Wherever the Braun Co. have used methods of [111] separating the drip bars with device to spacing them in the same principal as covered by our splines in all installations covered by this suit.

XQ. 113. Do you claim that except in connection with the two Shell Oil Co. Cooling Towers, the Braun Company has used decks consisting of drip bars that are loosely splined together at intervals as shown in your patent? A. I do.

XQ. 114. You seriously mean, Mr. Phillips, that you believe that The Braun Co. have never made any towers except the Shell Oil Co. towers where the drip bars have been joined together by loose splines connected the adjacent bars?

A. I do not know what you mean by loose splines?

XQ. 115. You know what a spline is, don't you?

A. Yes.

XQ. 116. Please state what it is?

(Deposition of Louis A. Phillips.)

A. A spline is a piece of material put in between two other pieces of material to hold them the right distance apart.

XQ. 117. You wouldn't call a bolt that ran into two pieces of material and held them a certain distance apart a spline, would you?

A. A bolt might or might not be a spline.

XQ. 118. What would be necessary to make the [112] portion that separates and yet connects the two other members a spline?

A. I should say this spacing feature.

XQ. 119. And it is your understanding that any member that spaces apart two other members is a spline? A. Not unless it holds them in position.

XQ. 120. And is it your understanding that any member that connects two other members and yet spaces them apart is a spline irrespective of the way the spacing member is connected with or contacts with the two members spaced apart?

A. I cannot think of an exception at the present time.

XQ. 121. According to your understanding of the word "spline" would a wooden block that is nailed to two drip bars, one on each side, spacing them apart be a spline?

A. I should think it might readily be a spline.

XQ. 122. Are you an engineer by profession?

A. I am a graduate engineer with degree of Mechanical Engineer and while for the last few years I have handled almost entirely the business

(Deposition of Barton H. Coffey.)

end, I still claim to know something about engineering.

Adjourned to June 14, 1923,—10 A. M. [113]

Met pursuant to adjournment.

June 14, 1923.

DEPOSITION OF BARTON H. COFFEY, FOR
PLAINTIFF (RECALLED—CROSS-EXAM-
INATION).

Cross-examination of Mr. COFFEY.

XQ. 107. Is it not a fact that prior to your patent for the invention set forth in your patent other cooling tower manufacturers were using wooden drip bars in atmosphere cooling towers? A. Yes.

XQ. 108. Who to your knowledge were using wooden drip bars prior to your invention?

A. They were used in what is technically known as slat towers, working on an atmospheric principle.

XQ. 109. By what concerns were such wooden drip bars or slats used in atmospheric cooling towers prior to the invention of your patent in suit?

A. They were not manufactured by specialized cooling tower companies, but were erected by the owners. There are a number of examples throughout the West in the stockyards of Chicago, Cincinnati and other places.

XQ. 110. Did Edwin Burhorn use wooden slats or drip bars in his cooling towers prior to your invention of the patent in suit? A. I know of none.

XQ. 111. What kind of drip bars did he use?

(Deposition of Barton H. Coffey.)

A. I don't think he used any drip bars prior to my patent. He used a perforated pan with drip strips riveted on the under side of the pan in accordance with the [114] Ostendorff patent.

XQ. 112. Referring to the wooden drip bar atmospheric cooling towers in which you are familiar prior to your invention of the patent in suit, please state whether these drip bars were spaced apart so that there were openings between the adjacent drip bars?

A. The slats were principally boards from six to eight inches wide nailed to the cross members of the tower with openings between the boards from half to three-quarters of an inch, I think, roughly.

XQ. 113. In some instances were these slats connected together by blocks or strips, at points intermediate the ends of the strips?

A. I never saw any connections between slats at either side.

XQ. 114. How long have you known Mr. Braun personally?

A. I met Mr. Braun only once on his visit to our office in New York.

XQ. 115. Did you attend a meeting of the A. S. R. E. at Buffalo in June, 1915?

A. I don't recollect it.

XQ. 116. Do you recall a meeting held in Buffalo in June, 1915?

A. It seems to me there was a meeting. [115]

XQ. 117. Didn't Mr. Braun read a paper during

(Deposition of Barton H. Coffey.)

the spring or summer of 1915 before the A. S. R. E. on atmospheric cooling towers?

A. I have no recollection of such paper.

XQ. 118. Have you recollection of any paper read or contributed by Mr. Braun to the A. S. R. E. on that subject? A. I have not.

XQ. 119. What was the first cooling tower erected by B. Franklin Hart that you had personal knowledge of?

A. I could not answer that question. I have seen a great many of his towers and at this late date the exact dates when I saw the towers is not in my mind at all, I only know in a general way a few towers whose location I do remember and the time of observation of these towers is only fixed approximately in relation to other matters.

XQ. 120. Fix approximately the best you can the time when you first saw a Hart Cooling Tower?

A. The best of my recollection when I first saw the Hart Cooling Tower is approximately 1910. I have already testified in direct examination regarding the places and the approximate dates when I saw these towers. [116]

XQ. 121. Were the Hart Towers with which you are familiar built in accordance with the disclosure of the Hart Patent, 902,875 which I now show you?

A. They were not.

XQ. 122. Were they built in accordance with the disclosures of the Hart catalog that you produced and put in evidence? A. They were.

XQ. 123. Did the Hart Towers with which you

(Deposition of Barton H. Coffey.)

are familiar have a set of supporting strips or braces that ran from the framework of the tower to a point near the top of the louver?

A. Not very near the top. The way they ran was horizontally from the level of the deck and joined the inclined brace at some point below the top as shown in the photograph of the catalog.

XQ. 124. Did the louvers of the Hart Tower with which you are familiar have strips of supporting braces extending downwardly from the bottom of the louver to a point on the frame? A. They did.

XQ. 125. Did the louvers of the Hart Towers with which you are familiar have any braces or supports connected with the louver near the top and extending at an angle to the horizontal to its point of connection with [117] the frame?

A. Yes, they did. They had an inclined angle extending from the top of the louver and connected with the frame at the bottom of the louver, the louver itself generally consisted of thin sheet iron bolted or otherwise fastened to the outside of the inclined angle.

XQ. 126. Were the braces or supports that were connected with the louver near the top separate and independent pieces from the braces or supports that extended from the bottom of the louver to the frame?

A. Yes, separate pieces, I recollect.

XQ. 127. Were the upper braces or supports short pieces of iron or steel that were bolted at one end

(Deposition of Barton H. Coffey.)

to the frame and at the other to a point near the top of the louver?

A. I presume you mean the horizontal members; these were bolted on the inner end to the frame in a line with the decks at the outer end to the inclined angles which in turn supports the louver, the louver itself being supported by inclined members.

XQ. 128. Have you personal knowledge of the method that was used to connect together the slats or drip bars in the two Shell Oil Co. towers erected by Braun in 1915? [118] A. No.

XQ. 129. Have you personal knowledge of the method that was used in connecting the slats or drip bars of the additions or enlargement of these towers? A. No.

Redirect Examination by Mr. FOULDS.

RD. Q. 130. In answer to XQ. 39, you said that you had designed a number of modifications, have you the drawing of any modification made by you, and if so, will you please produce it?

A. I produce plan 441 dated May 15, 1919, a thousand gallon tower erection plan 441 Newaygo Portland Cement Co., Newaygo, Michigan. This tower is designed to handle an extremely corrosive water and it was specified by the Cement Co. that all metallic connections, as nails, bolts, etc., of any kind whatever to be excluded and that all connecting devices wood, consequently all joints at intersections of structural members were made by large pins of wood and the deck members, drip bars and

(Deposition of Barton H. Coffey.)

other smaller wooden members were fastened with locust tree nails.

The section LL shows a main transverse braced frame in which the angle brackets supporting the louvers are made a part of the diagonal bracing for supporting the structure [119] as a whole against wind pressure and other stresses.

The section EE is through the end of the tower as indicated on the plan and shows the angle brackets at deck levels used at both ends of the tower.

RD. Q. 131. Will you please identify the bracing for the louvers on the section LL, in this plan 441?

A. At the top louver we have a horizontal brace LP-12 connected through the prime brace LP-13, the lower end of which is connected at deck level at the splice between member LP-15 and LP-10. The remaining louvers are slightly different from the upper louvers; in this case the upper member LP-15 instead of being horizontal like LP-12 it is inclined at the angle of the diagonal frame brace LP-10. Inclined member LP-13 is bolted at the top to member LP-15 and at the lower end at the splice between LP-15 and LP-10 in the same manner as the map describes from the louver above and so on with the rest.

RD. Q. 132. Can you identify the louvers on this plan 441?

A. The louver boards are shown in elevation at the view marked "End Elevation" also in section at the view marked "Section EE," they consist of one by six, T & G boards secured to the inclined

(Deposition of Barton H. Coffey.)

members LP-13, section LL [120] and LP-6, Section EE. They extend completely around the tower as indicated in view marked "Plan CC."

RD. Q. 133. How are the louvers connected to the braces at LP-13? A. By *a* locust tree nails.

RD. Q. 134. How are the louvers positioned with reference to the braces LP-13?

A. The braces LP-13 are carried by the brace frames as formerly explained. These frames being spaced longitudinally at intervals of five feet ten inches as shown in Plan DD. On the ends of the tower they are supported by two frames spaced five feet eight, the frames being illustrated in section EE in the spacing plan DD. At the four corners are special triangle frames having inclined members CPA conforming with the inclined members on the sides and ends of the tower. When these inclined members are planked, a perfect miter joint, retained at each corner forming of each complete louver a short truncated hollow pyramid. With its smaller end beneath the larger one.

RD. Q. 135. Was this drawing actually made at the date which it bears, May 15, 1919?

A. It was.

(The drawing produced by the witness is offered in evidence and marked Plaintiff's Exhibit 19a, Drawing No. 441.—J. J. C.) [121]

(By Mr. DUNCAN.)

The exhibit and the testimony concerning the same objected to as incompetent, irrelevant and immaterial.

(Deposition of Barton H. Coffey.)

It is stipulated that a blue-print of Plaintiff's Exhibit 19 be substituted for the original produced by the witness without waiver of objections.

RD. Q. 136. Do you know, of your own knowledge, whether a tower in accordance with this drawing No. 441, Plaintiff's Exhibit 19, was actually constructed? A. I do not.

RD. Q. 137. What knowledge have you as to the use made of this drawing and the tower shown therein?

Objected to as incompetent.

A. All the lumber, pins, tree nails, etc., entering the tower were manufactured and fabricated by us, that is, all holes were bored in the members and all members were cut the proper length and material shipped to the purchaser, Newaygo Portland Cement Co., Newaygo, Michigan.

RD. Q. 138. When was that done?

Objected to as not calling for the best evidence.

A. The fabrication began shortly after the completion of detailed drawing on or about the date of plan 441. [122] The dates of shipment I do not now recollect, but can produce same after consulting the records of the Cooling Tower Co. if necessary.

(The catalog produced by the witness in answer to XQ. 60 is offered in evidence and marked Plaintiff's Exhibit 20, Plaintiff's Catalog.—J. J. C.)

Cross-examination by Mr. DUNCAN.

XQ. 139. Are the drip bars used in the Newaygo Construction shown on Exhibit 19 connected by

(Deposition of Barton H. Coffey.)

wooden splines fitting into grooves on the vertical walls of the adjacent drip bars? A. They were.

XQ. 140. Is that the method of connecting and spacing the drip bars that your company has regularly used while you have been connected with it?

A. It has.

XQ. 141. In all the cooling towers made by your company and its predecessor since your connection with it, have the drip bars been connected together or spaced apart by means of wooden splines fitting into grooves on the vertical walls of the adjacent drip bars?

A. The best of my knowledge and belief, they have. [123]

Deposition of Mr. Coffey closed.

BARTON H. COFFEY.

Sworn to before me,

JOHN J. COYLE,

Notary Public.

DEPOSITION OF LOUIS A. PHILLIPS, FOR
DEFENDANT (RECALLED — CROSS-EX-
AMINATION).

Cross-examination of Mr. PHILLIPS (Resumed).

XQ. 123. Have you knowledge of the method used by Mr. Braun in connecting and spacing the part the drip bars in the original two Shell Oil Co. Towers erected in 1915, material for which he purchased from your company?

A. I have not seen the towers. My knowledge on the subject being derived from the fact that the

(Deposition of Louis A. Phillips.)

towers are supposed to be built in accordance with our plan. Instructions for erection having been sent to Braun.

XQ. 124. What is your knowledge as to the extent and detail of construction of the additions or enlargements of the two Shell Towers?

A. My knowledge of the subject comes through correspondence with the purchasers of the towers, reports of our representatives and through the fact that this tower could not very well be extended except by employing the same method of construction as shown on our plan.

XQ. 125. Is it your understanding that the extensions or enlargements of these two Shell Oil Co. towers are provided with drip bars, the sides of which have grooves [124] into which fit wooden splines spacing apart in connecting the adjacent drip bars? A. I so understand.

XQ. 126. When did you first learn of the erection of extensions or additions to the two cooling towers of the Shell Oil Co.?

A. I had reports of this prior to June 24, 1919, when the matter was confirmed through correspondence with the Shell Co.

XQ. 127. When were the extensions erected?

A. I cannot recollect the exact dates as you will bear in mind that I testified that Braun did not advise us as to the extension to the towers.

XQ. 128. Did you know of the extension to these Shell Co. towers the time you wrote your letter of July 1st, 1918, to the Union Oil Co.? (Exhibit 19.)

(Deposition of Louis A. Phillips.)

A. I cannot be positive of this date, but my recollection is that such additions had been reported to me.

XQ. 129. Have you sent to other concerns besides the Union Oil Co. who have purchased or contemplated the purchase of Braun Towers, letters similar in tenor to Exhibit 19, warning them against infringement of your patent in suit by the purchaser of Braun Towers?

Objected to as not proper cross-examination and defendant's counsel is advised that by pursuing this inquiry he will make [125] this witness his own witness.

A. I have looked through the files and have not found such letters as referred to in the question.

Redirect Examination by Mr. FOULDS.

RD. Q. 130. You were asked on cross-examination to produce the correspondence with defendant relative to the purchase of the Shell Co. towers; have you made a search for this correspondence, and if so, please state what you have found?

A. I have, and I have found a number of letters not offered in evidence. The letters offered in evidence show that Mr. Braun having previously sold cooling towers for the Alberger Pump and Condenser Co. then solicited our agency and carried the correspondence along chronologically through our letter of April 15, 1915, marked Exhibit 8, and from that letter a number of important communications have been omitted. Braun telegram of April 20, 1915, states that he now has inquiries from the Shell

(Deposition of Louis A .Phillips.)

Co. for one tower of forty thousand and one for eighty thousand gallons capacity gives atmospheric conditions and asks for price on special parts.

Without going into these letters in detail I produce the file of correspondence between ourselves and C. F. Braun [126] these letters and telegrams were respectively received and mailed in the regular course of business.

The letters produced by the witness are offered in evidence.

Subject to objections to relevancy, materiality and competency of the letters referred to and subject to comparison by counsel in San Francisco it is stipulated that plaintiff's counsel may list the letters which he now desires to offer in evidence, have copies of the same made and substitute the copies for the originals, it being understood that the entire correspondence not already offered will be offered in this connection and that objections of the character above referred to will be taken by San Francisco counsel at or before the trial.

(I offer in evidence letter written by Andrew Foulds, Jr., to Dewey, Strong & Townsend, dated September 4, 1918.—J. J. C.)

It is stipulated that if Mr. Andrew Foulds, Jr., were called as a witness he would testify that no answer was received by him to the letter of September 4, 1918, Plaintiff's Exhibit 22.

It is further stipulated that from the offering of

the copies of letters above referred to the deposition of the witness Phillips is closed.

LOUIS A. PHILLIPS.

Sworn to before me.

JOHN J. COYLE,

Notary Public. [127]

The letters produced by the witness, Louis A. Phillips, are offered in evidence on behalf of the plaintiff as follows:

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated November 27, 1914, being Plaintiff's Exhibit No. 4 for identification and the same is marked Plaintiff's Exhibit No. 4.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated December 30, 1914, being Plaintiff's Exhibit No. 6 for identification and the same is marked Plaintiff's Exhibit No. 6—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated February 27, 1915, being Plaintiff's Exhibit No. 7 for identification, and the same is marked Plaintiff's Exhibit No. 7.—J. J. C.

Letter written by Mitchell-Tappen Co. to Shell Co. of California, dated April 5, 1915, being Plaintiff's Exhibit No. 8 for identification and the same is marked Plaintiff's Exhibit No. 8.—J. J. C.

Telegram from C. F. Braun & Co. to Mitchell-Tappen Co. dated San Francisco, April 20, 1915, and the same is marked Plaintiff's Exhibit No. 23.—J. J. C.

Telegram written by Mitchell-Tappen Co. to C. F. Braun & Co. dated New York, 4-21-15, and the same is marked Plaintiff's Exhibit No. 24.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated April 21, 1915, being Plaintiff's Exhibit No. 9 for identification and the same is marked Plaintiff's Exhibit No. 9.—J. J. C. [128]

Telegram sent by C. F. Braun & Co. to Mitchell-Tappen Co. dated San Francisco, April 27, 1915, and the same is marked Plaintiff's Exhibit No. 25.—J. J. C.

Telegram sent by Mitchell-Tappen Co. to C. F. Braun & Co. dated New York, April 28, 1915, and the same is marked Plaintiff's Exhibit No. 26.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated April 28, 1915, and the same is marked Plaintiff's Exhibit No. 26a.—J. J. C.

Telegram sent by C. F. Braun & Co. to Mitchell-Tappen Co. dated San Francisco, May 10, 1913, and the same is marked Plaintiff's Exhibit No. 27.—J. J. C.

Telegram sent by Mitchell-Tappen Co. to C. F. Braun & Co. dated May 11, 1915, and the same is marked Plaintiff's Exhibit No. 28.—J. J. C.

Telegram sent by C. F. Braun & Co. to Mitchell-Tappen Co., dated San Francisco May 12, 1913, and the same is marked Plaintiff's Exhibit No. 29.—J. J. C.

Telegram sent by Mitchell-Tappen Co. to C. F. Braun & Co., dated May 13, 1915, and the same is marked Plaintiff's Exhibit No. 30.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated May 13, 1915, and the same is marked Plaintiff's Exhibit No. 31.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated May 14, 1915, and enclosures Mitchell-Tappen Co. to the Shell Co. dated May 14, 1915, and the same is marked Plaintiff's Exhibit No. 32.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated May 14, 1915, and the same is marked Plaintiff's Exhibit No. 33.—J. J. C. [129]

Letter written by C. F. Braun & Co. to Mitchell-Tappen Co. dated May 20, 1915, and the same is marked Plaintiff's Exhibit No. 34.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated May 22, 1915, and the same is marked Plaintiff's Exhibit No. 35.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co., dated May 27, 1915, and the same is marked Plaintiff's Exhibit No. 36.—J. J. C.

Telegram sent by C. F. Braun & Co., to Mitchell-Tappen Co., dated San Francisco, May 8, 1915, and the same is marked Plaintiff's Exhibit No. 37.—J. J. C.

Telegram sent by Mitchell-Tappen Co. to C. F. Braun & Co., dated New York, May 29, 1915, and the same is marked Plaintiff's Exhibit No. 38.—J. J. C.

Letter sent by Mitchell-Tappen Co. to C. F. Braun & Co., dated May 31, 1915, and the same is marked Plaintiff's Exhibit No. 39.—J. J. C.

Letter written by C. F. Braun & Co. to Mitchell-Tappen Co. dated June 21, 1915, and the same is marked Plaintiff's Exhibit No. 40.—J. J. C.

Telegram sent by C. F. Braun & Co. to Mitchell-

Tappen Co. dated San Francisco June 3, 1915, and the same is marked Plaintiff's Exhibit No. 41.—J. J. C.

Telegram sent by Mitchell-Tappen Co. to C. F. Braun & Co., dated June 4, 1913, and the same is marked Plaintiff's Exhibit No. 42.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated June 4, 1915, and the same is marked Plaintiff's Exhibit No. 43.—J. J. C. [130]

Letter written by C. F. Braun & Co. to Mitchell-Tappen Co. dated June 14, 1915, and the same is marked Plaintiff's Exhibit No. 44.—J. J. C.

Letter written by C. F. Braun & Co. to Mitchell-Tappen Co. dated June 17, 1915, and the same is marked Plaintiff's Exhibit No. 45.—J. J. C.

Letter written by Mitchell-Tappen Co. to C. F. Braun & Co. dated June 23, 1915, and the same is marked Plaintiff's Exhibit No. 46.—J. J. C.

Letter written by The Cooling Tower Co., Inc., to C. F. Braun & Co. dated July 19, 1915, and the same is marked Plaintiff's Exhibit No. 47.—J. J. C.

Sworn to and subscribed before me this 14th day of June, 1923.

[Seal]

JOHN J. COYLE,

Notary Public, New York County. [131]

State of New York,
County of New York,—ss.

I, John J. Coyle, a notary public, in and for the county of New York and State of New York, do hereby certify that the foregoing depositions of Barton H. Coffey and Louis A. Phillips, were taken on behalf of Cooling Tower Co., Inc., the plaintiff,

in pursuance of the notice hereto annexed, before me, at No. 120 Liberty Street, in the Borough of Manhattan, in the city of New York, county of New York and State of New York, on June 6th, 11th, 13th and 14th, 1923. That the said witnesses were by me severally sworn before the commencement of their testimony; that the testimony of the said witnesses was taken by Miss Agnes Creamer directly on the typewriter in my presence; that the defendant, C. F. Braun & Co., was represented by Frederick S. Duncan, Esq., who was present during the taking of said testimony; that said testimony was taken at the place aforesaid on the days above stated. That I am not connected by blood or marriage with either of said parties nor interested directly or indirectly in the matter in controversy.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my seal of office at the city of New York, county of New York and State of New York, this 14th day of June, 1923.

[Seal]

JOHN J. COYLE,
Notary Public. [132]

(Title of Court and Cause.)

NOTICE RE TAKING DEPOSITIONS DE
BENE ESSE OF LOUIS A. PHILLIPS ET
AL.

To Charles E. Townsend, Attorney for Defendant.

Please take notice that on the 6th day of June, 1923, at ten o'clock in the forenoon, the deposition

de bene esse of Louis A. Phillips of Hastings-on-Hudson in the county of Winchester and State of New York, Barton H. Coffey, of the city of New York, county of New York and State of New York, A. Bonell Tappen of Briarcliff Manor, in the county of Winchester and State of New York, and William F. Mitchell of Nutley, in the County of Essex and State of New Jersey, will be taken on behalf of the plaintiff herein, by John J. Coyle, Esq., notary public, in and for the county of New York, State of New York or other proper officer who is not of counsel or attorney to either of the parties, nor interested in the event of the cause, at his office, room 900, No. 120 Liberty Street, in the Borough of Manhattan, city of New York, county of New York and State of New York.

The said witnesses reside at the places above stated, more than one hundred miles from the place where the trial of this action will occur.

The examination of said witnesses will proceed from day to day until completed and will be taken under sections 863, 864, 865, Revised Statutes of the United States.

Dated, New York, May 1st, 1923.

EDWARD A. O'BRIEN,
ASHLEY and FOULDS,
Attorneys for Plaintiff.

Receipt of copy of within notice acknowledged this 16th May, [133] 1923.

CHAS. E. TOWNSEND,
WM. A. LOFTUS,
Attys. for Deft.

[Endorsed]: Filed Nov. 26, 1923. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.
[134]

In the Southern Division of the United States District Court for the Northern District of California, Second Division.

Before Honorable JOHN S. PARTRIDGE, Judge.
No. 923—IN EQUITY.

COOLING TOWER COMPANY, INC., a Corporation,

Plaintiff,

vs.

C. F. BRAUN & COMPANY,

Defendant.

Tuesday, November 27, 1923.

Wednesday, November 28, 1923.

Friday, November 30, 1923.

Tuesday, December 4, 1923.

REPORTER'S TRANSCRIPT.

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In the Southern Division of the United States Dis-
trict Court, in and for the Northern District of
California, Second Division.

Before Honorable JOHN S. PARTRIDGE, Judge.
IN EQUITY—923.

COOLING TOWER COMPANY, INC., a Cor-
poration,

Plaintiff,

vs.

C. F. BRAUN & COMPANY, a Corporation,
Defendant.

November 27, 1923.

Counsel Appearing:

For Plaintiff: ANDREW FOULDS, Jr., Esq.
E. A. O'BRIEN, Esq.

For Defendant: CHARLES E. TOWNSEND,
Esquire.

Mr. FOULDS.—If your Honor please, I hand you a copy of the patent on which this suit is based. It has to do with the cooling tower art. As your Honor possibly knows, cooling towers are used in industrial plants for the purpose of reducing the temperature of water; they effect a great saving in the water used. The water is elevated or pumped to the top of the tower and then permitted to flow through a series of decks, as they are called, in fine spray, small drops, and cooled by atmospheric action. There are a number of types of cooling powers. Some use a forced draft—that is, the air is pumped up through the water as it flows, and others merely use the atmospheric action. Ours is an open type tower, a framework upon which are supported slats or bars, and the [137—1] wind blowing through the tower cools the water, so that as it is collected in the basin of the tank at the foot of the tower the temperature has been reduced. The patent has to do particularly with the form of the decks. The tower is broken from top to bottom by these open slat decks. Various methods have been used for breaking up the water in its fall. We use wooden slats or bars. At the top of the deck there is a bar running across

the deck laterally which has a trough on top. The water is distributed into these bars by small spaces; the water overflows the bars, flows to the deck below, where the bars run at right angles, it splashes on these bars and runs down between them to another deck, and so on, for four decks. Then there is another distributing deck, the trough running in the opposite direction, for the purpose of again distributing the water so that if the wind blows it to one side of the tower it is again distributed evenly over the entire tower.

We have taken depositions of some witnesses in New York, and we will have some other testimony here.

I will offer in evidence a patent in suit granted to Mitchell-Tappen Co., as assignee of B. H. Coffey, No. 1,010,020, dated November 28, 1911.

The COURT.—This is a copy of it?

Mr. FOULDS.—That is a copy of the patent. I also offer in evidence the assignment. This was offered in evidence in New York, the assignment of the patent by the Mitchell-Tappen Co. to the Cooling Tower Company, dated May 17, 1915, which was marked Plaintiff's Exhibit No. 12 in the depositions.

The COURT.—Admitted.

(The patent is marked Plaintiff's Exhibit 48.)

Mr. TOWNSEND.—If your Honor please, would you care to hear an outline of the defendant's position? It might clarify [138—2] the issue somewhat.

(Testimony of Walter Hagenbuch.)

The COURT.—I think I would rather hear it at the conclusion of the plaintiff's case.

Mr. TOWNSEND.—Very well.

TESTIMONY OF WALTER HAGENBUCH, FOR PLAINTIFF.

WALTER HAGENBUCH, called for the plaintiff, sworn.

Mr. FOULDS.—Q. Mr. Hagenbuch, you reside where? A. In Martinez.

Q. In this state?

A. In the State of California.

Q. And you are employed by whom?

A. By the Shell Company of California.

Q. At their Martinez refinery?

A. At the Martinez refinery.

Q. How long have you been employed there?

A. Since 1914.

Q. Do you recall that a cooling tower was erected at the Shell Company Martinez refinery by C. F. Braun & Co., the defendant? A. I do.

Q. When was that? A. In 1915.

Q. I call your attention to Plaintiff's Exhibit No. 10; that is a photograph of that cooling tower, is it not? A. It is.

Q. When were these two towers erected by the defendant? A. In 1915—after July, 1915.

Q. Subsequently, did the defendant enlarge one of these towers? A. It did.

Mr. TOWNSEND.—Objected to, as no proper foundation is laid as to what the defendant did.

(Testimony of Walter Hagenbuch.)

We are willing to admit a lot of matters in regard to these towers, but this witness is not qualified, I think, to testify.

Mr. FOULDS.—I assumed that there would be no dispute about that. You admitted that you extended one of these towers.

Mr. TOWNSEND.—We did extend one of these towers, but I [139—3] do not think you can prove that fact by this witness.

Mr. FOULDS.—If there is any dispute about it—

The COURT.—I will admit it anyway.

Mr. FOULDS.—Q. When was that tower extended?

A. It must have been in the first part of 1916.

Q. That was tower No. 2? A. Tower No. 2.

Q. Then, subsequently, did the defendant rebuild these two towers?

A. They rebuilt them, yes.

Q. When was that? A. That was in 1920.

Q. Did the defendant also build a third tower for our company?

A. Yes, there was a third one built.

Q. About when? A. In 1921.

Q. Have you examined these towers, Mr. Hagenbuch?

A. Superficially I have examined them.

Q. Will you describe the towers and the decks?

Mr. TOWNSEND.—I object to the qualification of this witness to testify.

The COURT.—He can testify to what he saw here. The objection is overruled.

(Testimony of Walter Hagenbuch.)

A. I do not remember how the first towers were constructed, but the towers as constructed now are composed of ten decks; the first deck and the fifth deck from the top are running crosswise and the other ones are running lengthwise.

Mr. FOULDS.—Q. When you say they are running crosswise, you mean the slats or bars of these decks are running in that direction?

A. That is what I mean.

Q. Will you describe the slats or bars of the top deck?

A. The top deck and the fifth deck have cross bars, and they have grooves, I think they are half-round grooves, in which the water flows.

Q. Those grooves run the length of the bars?

A. The grooves [140—4] run not quite the length of the bars; they are interrupted by wooden pieces, about 1 by 2, which are nailed down, they are countersunk nearly to the bottom of the half-round groove in the cross pieces, and nailed to the same. The longitudinal bars which are located in the second, third, fourth, sixth, seventh, eighth, ninth and tenth decks have small grooves running lengthwise.

Q. How are those slats spaced?

A. They are held in place by some small metal fasteners which are bent down between them and nailed from the outside.

Q. Did you observe in many cases that these straps are loose and not nailed down. A. Yes.

Mr. TOWNSEND.—Objected to as leading.

(Testimony of Walter Hagenbuch.)

The COURT.—I will overrule the objection.

Mr. FOULDS.—Q. How are these decks supported?

A. They are supported by wooden supports.

Q. Frames running around?

A. Frames running crosswise.

Q. How is the water delivered to the top of the tower?

A. The water runs by gravity from the top of the tower.

Q. And then how does it operate, what happens to the water?

A. The water is running in longitudinal troughs, and from the longitudinal troughs it is distributed into cross-troughs; these troughs running crosswise, distribute it to small longitudinal troughs again, and from there it is distributed to the bars.

Q. And the water overflows the bars onto the cross-bars below? A. Yes.

Q. And so on to the bottom? A. Yes.

Mr. FOULDS.—That is all.

Cross-examination.

Mr. TOWNSEND.—Q. Mr. Hagenbuch, when you said that the [141—5] original towers that were erected in 1915 were reconstructed, just what did you mean?

A. I mean that the towers that were built in 1915 were torn down and new ones were erected; the old foundations were remodeled to take the new ones.

(Testimony of Walter Hagenbuch.)

Q. That is what I thought you meant by the term "reconstructed." A. Yes.

Q. Because that is not the usual way we use that word. New towers were built by Braun & Co. in 1920, after the old ones were torn down?

A. I think that is right.

Q. When you spoke about these slats having grooves in the new Braun towers in 1920, where were those grooves?

A. The grooves were on top of the slats.

Q. Forming little troughs along the top of the slats? A. Yes.

Q. There were no grooves, as far as you know, anywhere else on the slats?

A. No, not as far as I know.

The COURT.—What is the water used for?

A. The water is used for condensing oil products, distillates.

Q. For cooling purposes?

A. For cooling purposes.

Mr. TOWNSEND.—I will show you a blue-print, Mr. Hagenbuch. I will first ask you if you are used to reading blue-prints? A. I am.

Q. I will ask you if you recognize the construction shown in that blue-print as being like anything that is up there at the Shell plant, or was in that addition that Mr. Braun put on in 1916?

A. I recognize this section, the top section.

Q. Pointing to the figures at the upper left-hand corner of the print, marked A-1?

A. Yes. I have never inspected the towers as

(Testimony of Walter Hagenbuch.)

they were first erected, and I don't know whether these connections were there.

Q. Referring to the part marked "A-4."

The COURT.—You are speaking of the present tower, or the [142—6] first tower?

A. The present tower. I don't think that the present tower has these connections.

Mr. TOWNSEND.—Q. You mean the tongue at the right of A-4, and the groove at the left end?

A. They seem to be simply on the side. I don't know whether the grooves are round or angled.

The COURT.—Q. You don't know whether the grooves are round or angled?

A. I do not. I think they are round, now, but I am not positive of it.

Mr. TOWNSEND.—I will ask that this blue-print be marked Defendant's Exhibit "A" for identification.

The COURT.—You have not shown very clearly what it is. It is a blue-print of what?

Mr. TOWNSEND.—This is a blue-print of the plant construction employed by Mr. Braun in the addition of 1916. I will have it identified later.

A. I remember that now, that is a louver board.

Q. Add anything that you desire to your statement.

A. I think these are louver boards; they are the slanting boards; not the horizontal boards.

Q. Do you know what A-1 is?

A. I think A-1 is the top distributing deck.

(Testimony of Walter Hagenbuch.)

Mr. TOWNSEND.—I ask that this be marked Defendant's Exhibit "A" for identification.

(The document was marked Defendant's Exhibit "A" for identification.)

Q. Now, in referring to the metal strips that you have holding down the wooden slats of the deck in the present construction, can you describe that piece of construction a little more in detail?

A. Assuming you have a number of longitudinal wooden bars, let us assume they are spaced, for the sake of [143—7] argument, $\frac{3}{8}$ of an inch apart; then that metal strip would run over the top of them crosswise, being bent down into the space between them, as such providing distance pieces; you might call them spacers, perhaps.

Q. Is this bent metal strip that forms the distance piece or spacer similar to what is shown here in Fig. 3 of Braun patent 1,334,515 of March 23, 1920?

A. With the exception I have not noticed this nail in Fig. 3.

Q. How are these strips ordinarily held down?

A. There is a nail on the outside, on the end.

Mr. TOWNSEND.—I will offer this patent to Braun, referred to, in evidence, in illustration of the witness' testimony, as Defendant's Exhibit "B."

The COURT.—Let it be marked.

(The document was marked Defendant's Exhibit "B.")

Mr. TOWNSEND.—Q. Do you recall the method for holding the slats down that was employed by

(Testimony of Walter Hagenbuch.)

Mr. Braun in the addition that he built to the Shell towers in 1916? A. I do not.

Q. If I mentioned the use of angle irons being laid over the slats and tongues being placed from one side of the angle down in between the spaces, would that refresh your memory?

A. I have never inspected as to the details.

Mr. TOWNSEND.—That is all.

Mr. FOULDS.—That is all.

TESTIMONY OF CARL F. BRAUN, FOR
PLAINTIFF.

CARL F. BRAUN, called for the plaintiff, sworn.

Mr. FOULDS.—Q. Where do you reside, Mr. Braun? A. Pasadena.

Q. Did you formerly reside in San Francisco?

A. Yes.

Q. When?

A. I moved approximately August or September of [144—8] last year.

Q. Are you connected with the defendant, C. F. Braun & Co.?

A. I am president of the company.

Q. How long have you been president?

A. Since 1908 or 1909.

Q. Is that when the company was organized?

A. The company was that time another company which had been organized a short time before we bought it.

Q. You reorganized that company and called it C. F. Braun & Co.?

(Testimony of Carl F. Braun.)

A. We changed the name to Braun, Williams & Russell, and several years later changed it to C. F. Braun & Co.

Q. When did you first learn of the plaintiff's tower?

A. I believe a few months prior to the time that we sent them an inquiry for a cooling tower.

Q. How did you learn it?

A. I do not remember; possibly through friends, or possibly through advertising; I do not remember.

Q. You heard favorable reports of the plaintiff's tower?

A. I do not believe that I had any reports of the plaintiff's tower at the time that I sent an inquiry.

Q. You thought at that time it would be a desirable thing to represent them here on the coast, didn't you? A. I thought—

Mr. TOWNSEND.—I object to that as leading.

The COURT.—But Mr. Braun is president of the defendant corporation and, to that extent at least, a hostile witness. The objection is overruled.

A. I thought that it might be desirable to represent them, but subsequent events proved otherwise.

Mr. FOULDS.—I move to strike out the latter part of the answer following, "but subsequent events."

The COURT.—I will let it stand.

Mr. FOULDS.—Q. Do you recall writing this letter to [145—9] Mitchell-Tappen & Co. on November 21, 1914, referring to Plaintiff's Exhibit 1?

(Testimony of Carl F. Braun.)

Mr. TOWNSEND.—Perhaps I can shorten the record. There has been a lot of correspondence offered by Mr. Foulds in New York in connection with the depositions there, and we will admit all of the correspondence except the one letter that Mr. Foulds claims he wrote to me, or to my firm on September 4, 1918. I have no recollection of having ever received that letter, and it is not in my file, and I do not think it ever was. I would state affirmatively that it was never received in my office. All of this other correspondence I will admit as having passed between these parties, reserving the objection of materiality or relevancy.

The COURT.—How am I going to tell whether it is material or not?

Mr. TOWNSEND.—There is no objection one way or the other. I will make the stipulation without qualification.

The COURT.—Does that stipulation meet the matter, Mr. Foulds?

Mr. FOULDS.—I think that if there is any objection going to be made they should be noted.

Mr. TOWNSEND.—I am not going to object to copies of letters, or anything of that sort. I am reliably informed that correspondence took place.

Mr. FOULDS.—Q. Do you recall writing that letter? A. Yes.

Q. And in answer to that letter did you receive Mitchell-Tappen Co. circulars, bulletins?

A. That, I believe, is a matter of record in the letter. It is difficult for me to remember whether

(Testimony of Carl F. Braun.)

I received their bulletins in answer to this letter, or in answer to other letters.

Q. You did receive them, however?

A. Yes, about that time I received them. [146—10]

Q. Bulletin No. 7 they sent you—this is Exhibit No. 3—you received bulletins of that kind, copies of that bulletin back at that time from the Mitchell-Tappen Co., the predecessor of the plaintiff?

A. I have seen this bulletin, and remember receiving similar bulletins, but as to when I received them I could not definitely specify.

Q. Do you remember receiving it about that time, before the erection of this Shell Company tower?

A. I do not remember seeing it; it is possible that I did receive it at that time; it is many years ago.

Q. I call your attention to the Mitchell-Tappen Co. letter to you of November 27, 1914, marked Exhibit No. 4, and your letter dated December 24, 1914, marked Exhibit 5. Does that refresh your recollection? A. Yes.

Q. Can you say whether you received Bulletin No. 7 about that time?

A. This letter, I believe, is a better record than my memory, and it mentions the Bulletin.

Q. You recall examining the literature of this plaintiff company? A. Yes.

Q. And do you recall writing on May 17, 1915, that you were now ready to undertake the sale of their cooling towers for this state? A. Yes.

(Testimony of Carl F. Braun.)

Q. I show you Plaintiff's Exhibit No. 18—

The COURT.—These numbers indicate the numbers given on the taking of the deposition?

Mr. FOULDS.—Yes.

A. I wrote this letter.

Q. Following that, did you undertake the sale of the plaintiff's towers on the Pacific Coast?

A. I purchased two towers from them.

Q. Will you answer my question: Did you undertake the sale of [147—11] the plaintiff's towers on the Pacific Coast?

A. I purchased two towers from them.

Q. Did you try to sell the plaintiff's towers on the Pacific Coast?

A. I purchased two towers and parts for two towers from them, and sold those parts.

Q. Did you try to sell towers generally for the plaintiff on the Pacific Coast. When I say "you," I mean your company, the defendant.

A. We did try to, and did sell the two towers in question.

Q. These towers that were sold to the Shell Company?

A. We sold to the Shell Company parts of the towers.

Q. For their plant at Martinez? A. Yes.

Q. What do you mean by selling to the Shell Company parts of towers?

A. I mean to say we contracted with the Shell Company for a cooling tower, and we purchased

(Testimony of Carl F. Braun.)

part of that tower from Mitchell-Tappen Co., and other parts elsewhere.

Q. What do you mean by purchasing other parts elsewhere?

A. I mean that we purchased lumber for the tower locally.

Q. The Cooling Tower Company gave you the drawings for that lumber, didn't they?

A. They did.

Q. And specifications? A. They did.

Q. So that it was the Cooling Tower Company's tower, except that you got the lumber and manufactured it according to the Cooling Tower specifications and on their license?

A. The Cooling Tower Company supplied the drawings; it was part of our order that they should supply the drawings.

Q. They gave you a specific license to erect that tower?

Mr. TOWNSEND.—The use of the word "license" in counsel's question is objected to as assuming a fact not in the record.

Mr. FOULDS.—I refer you to a letter of the Mitchell-Tappen Co. to you, dated April 21, 1915, Plaintiff's Exhibit [148—12] 9, and call your attention to this sentence: "The wood drip bars are patented and we allow you to use them in this case only." You recall that, do you not?

A. Yes, I remember this letter.

Q. And it was on that that you bought the wood

(Testimony of Carl F. Braun.)

for these towers which were erected on their design, was it not?

A. I bought the wood for the towers from their drawings under our orders.

Mr. TOWNSEND.—If your term “license” had reference to that letter in that way, I withdraw my objection.

Mr. FOULDS.—That is my understanding that they licensed him to use their patent.

Q. Had you ever seen drip bars having troughs running longitudinally before this Cooling Tower drip bar?

A. No, I do not recollect of having seen bars similar to these.

Q. Have you the erection drawings for this tower?

A. No, they were returned to the Mitchell-Tap-pen Company.

Q. They sent you extra copies, though, didn't they?

A. All drawings were returned to Mitchell-Tap-pen Company.

Q. I show you these prints and ask you whether you recognize these as copies of the drawings sent to you for the erection of the two towers at the Shell refinery at Martinez?

A. We received drawings at least very similar to these. I cannot remember detail drawings since 1914.

Q. Can you see anything there which appears to be different from what was sent to you at that time?

(Testimony of Carl F. Braun.)

A. Not offhand.

Q. Have you studied them?

A. It is impossible to study them in the length of time I have now.

Q. I refer you to a sheet numbered 105 and ask you whether you recall the distributing bar marked J1 at the top, the drip bar marked J3, and the louver board below that at the left-hand side of the drawing? A. Yes, I recall them. [149—13]

Q. Were those original two towers constructed with distributing bars, and drip bars, and louver boards, as shown on that drawing?

A. I believe that they were.

Q. Will you describe the position and construction of the louvers on these towers of the plaintiff which you erected at the Shell plant at Martinez?

A. A louver appeared extending outwardly from the tower at an angle, as shown on the photograph.

Q. You refer to Plaintiff's Exhibit No. 10?

A. Yes.

Q. At an angle approximately of 45 degrees?

A. Approximately.

Q. How were those louver boards supported? You may refer to the drawings shown you.

A. They were supported by brackets similar to those shown on 59.

Q. That is, the horizontal frame of the deck was extended outwardly to the top of the inclined louver board, and the lower edge of the louver board was secured near the deck below? A. No.

Q. In what respect was my statement incorrect?

(Testimony of Carl F. Braun.)

A. The entire statement is incorrect.

Q. I call your attention to three figures at the top of a sheet No. 116; what is the figure in the upper left-hand corner marked "Elevation 2-2"?

A. I do not understand you. This is a side view of the tower. Permit me to remark this is an elevation of a standard 1400-gallon cooling tower; that is the title of the drawing.

Q. What are the figures marked "Elevation 1-1," "Elevation 2-2," "3-3"?

A. Elevation of a standard 1400-gallon cooling tank.

Q. That answer does not mean anything.

Mr. TOWNSEND.—I apprehend you are asking for an explanation of what these mean?

Mr. FOULDS.—Yes.

A. I do not hardly understand what you mean. An elevation is ordinarily a side view. [150—14]

Q. Then the figure marked "Elevation 2-2" is a section taken on the line 2-2?

A. It is not a section of the tower, it is an elevation, as I understand it.

Q. But the louvers are not shown; the louvers are removed, therefore it would make a section?

A. This is a diagrammatic representation.

Q. I am trying to get an explanation so that we will understand what this blue-print means. You, of course, know, because you are accustomed to blue-prints.

A. The diagram shows where the louvers would be.

(Testimony of Carl F. Braun.)

Q. You refer to the lines on the two ends?

A. They are purely lines, and I presume these lines are where the louvers go, although I would not say exactly. These lines may mean louvers but they do not clearly show.

Q. I am referring to the part between the framework shown here and the observer.

Mr. TOWNSEND.—There is nothing here on this blue-print to show any louver between the observer and the tower.

The COURT.—What you are trying to get at is whether that is an open section.

Mr. TOWNSEND.—Counsel referred to a section on the elevation 1-1, and the figures 2-2; there is nothing there but those figures, with the arrows to indicate that that is a section.

Mr. FOULDS.—I think the witness can explain this.

A. If this is an open section, the drawings are improperly marked.

Q. Refer to the extended horizontal deck at the top of this tower in the three views marked "Elevation 2-2," "Elevation 1-1," and "Section 3-3," and state whether that does not show a horizontal deck frame extended out to the top of the louver?

Mr. TOWNSEND.—If counsel has the specifications that accompanied these blue-prints, I think it would only be fair to [151—15] submit those specifications to the witness.

A. From this drawing, particularly the plan, I conclude that the horizontal member is not extended.

(Testimony of Carl F. Braun.)

Mr. FOULDS.—Q. I refer you to section 3-3 on the upper right-hand corner, and ask whether at every deck the horizontal member is not extended to the top of the louver? A. No.

Q. What is that line?

A. As shown by the detail drawings submitted, it is a bracket, a separate piece.

The COURT.—Where is that?

A. That is here, I believe, and is shown by the plans to be a separate piece; this is a plan drawing, it is marked "Plan"; there is no member extending here or here. I mean there is no member extending here or there. This is a walk, here.

Mr. FOULDS.—Q. Then there was a walk extending out from the top of the tower to the top edge of the louver?

A. There was a walk around the tower; I do not remember the exact location of it.

Q. Does the walk support the top of that louver?

A. Not according to the drawing.

Q. It was secured to the top of the louver, was it not? I refer you again to section 3-3, and also to the other elevation on the top of that sheet, No. 116.

A. It was secured to a vertical member, an outside member.

Q. And the top of the louver board was also secured there at that point, was it not?

A. Not at that point, but as shown by this drawing at another point.

Q. Will you explain what you mean—what detail drawing you referred to? A. 59.

(Testimony of Carl F. Braun.)

Q. What does 59 show?

A. It shows details of a cooling tower, particularly that part of the structural steel work on the outside of the tower. [152—16]

Q. Can you show us where the detail of the steel work shown on this drawing 59 fits on to the detail shown on sheet No. 116? A. Yes.

Q. You have turned sheet 59, with its left-hand side at the bottom: Is that the way it should read?

A. I believe so; that is the way I read the drawing.

Q. Will you explain what the drawing shows as you have now positioned it?

A. The drawing shows a vertical column, a vertical member about three feet from the column, a short angle or a short member, I believe they are angles, connecting the columns and the outside members.

Q. Now, referring to the lower part of the drawing, you find two panels, do you not, one on the right and one on the left?

A. No, I do not find panels.

Q. Will you tell us whether these parts marked LP and CP respectively are a section of the supporting frame of the tower?

A. They appear to differ.

Q. Referring to this drawing, where is the tower itself positioned with reference to these uprights?

A. These are part of the tower.

Q. I refer to the body of the tower.

(Testimony of Carl F. Braun.)

A. These are part of the tower. I do not understand clearly what you want.

Q. I am trying to learn the relative positions of these parts as to the tower body or deck Section. Do they lie to the left or to the right of the view as shown?

A. They lie to the right of the view as shown.

Q. Referring to the legend, what does CP mean, being the upper or left-hand figure?

A. CP is a designating symbol on the detail of that column.

Q. Corner post? A. Yes.

Q. And referring again to the legend, what does LP refer to? [153—17]

A. Presumably, a louver post. The words are given on the drawing.

Q. Now referring to the louver posts marked LP, when this drawing is turned with its left-hand side at the bottom, we find an inclined piece at the bottom, and near the top, one marked LP-1 and the other marked LP-2. What are those?

A. They are short angle iron members upon which louver boards are to be laid.

Q. And three of them are shown on this figure, are they not? A. No, pardon me.

Q. I mean three are shown and the others are indicated? A. Three are indicated.

Q. Indicated by these letters? A. Yes.

Q. Will you describe the louver supports by referring to this drawing, sheet 59? Do you find a

(Testimony of Carl F. Braun.)

triangle with its vertical member an upright post of the tower?

A. There is not an exact triangle.

Q. Is it a three-sided member? A. Yes.

Q. Isn't a three-sided member a triangle?

A. This is four-sided, that is why I stated it was not an exact triangle. This is not a three-sided member, but a four-sided member.

Q. Will you refer to the bottom of the drawing and tell me whether that is a triangle?

A. That is a triangle.

Q. Now, the vertical side of that right-angle triangle is the vertical post of the tower, is it not?

A. It is.

Q. And the horizontal member is an extension of the deck, is it not? A. No.

Q. What is it? A. It is a separate piece.

Q. But it is extended at the deck, is it not?

A. The drawing does not show that.

Q. Refer to indicated position of the deck throughout the [154—18] height of the tower and of the louver portion throughout the height of the tower, and tell me whether there is not a horizontal member extended out from approximately the deck to the top of the louver board?

A. If I read this drawing correctly, the louver-supporting member is not extended at the deck.

Q. Referring to the lower part of the louver post shown at the lower part of this sheet 59, will you indicate on that triangular louver support with the words "Louver plates" within the tri-

(Testimony of Carl F. Braun.)

angle where the deck terminates and where the horizontal louver support joins the vertical post?

A. There is no horizontal louver support.

Q. It is approximately horizontal, is it not?

A. No.

Q. How much off the horizontal?

A. 15 degrees, approximately.

Q. You think that the horizontal support from the top of the louver to the horizontal deck is 15 degrees off the horizontal?

A. I think there is not a horizontal member.

Q. Is there not a horizontal deck member?

A. There is a horizontal deck member, but not shown on this drawing.

Q. It is indicated on the drawing, is it not?

A. I cannot find it. That is why I said, if I read the drawing correctly, I believe these—indicating the dots on the right-hand post—are where the deck comes in, but I can't find any notation on this drawing that shows that it is.

Q. Can you tell us where the horizontal deck members join the vertical post? You might refer to the lower triangle shown on the figure marked LP.

A. I am unable to find on this drawing the position at which the deck is secured to the posts, but I believe it is about three inches above the point where the louver supporting angle member is secured.

Q. The dots shown on this vertical post are intended to indicate bolt holes or bolts, are they not?

(Testimony of Carl F. Braun.)

A. Yes. The solid [155—19] dots are so marked.

Q. Then the solid dots on the vertical posts will show where the horizontal deck member is bolted to the vertical frame; is that correct?

A. Or where something else is bolted to the vertical frame.

Q. Do you recall having erected the tower of the plaintiff?

A. I did not personally erect the tower.

Q. You had supervision of it, did you not?

A. No.

Q. How frequently were you there on the field?

A. As erector, not at all.

Q. Will you read my former question, Mr. Reporter?

(The record was here read by the reporter.)

A. I do not remember.

Mr. TOWNSEND.—Might I just make a suggestion? If counsel will indicate what he wants to prove by these drawings, perhaps we can stipulate to it. If it is a question of proving what the construction of that Shell tower in 1915 was, I am quite sure we would co-operate to give the Court knowledge of what the exact construction was. It is difficult to take blue-prints, having no specifications, and attempt to build up a theory as to construction which may not accord at all with the actual facts.

Mr. FOULDS.—Might I dictate this stipulation, and perhaps you will agree to it. Please tell me if I am not right.

(Testimony of Carl F. Braun.)

Mr. TOWNSEND.—We can perhaps agree on what that construction was. I do not know anything about these blue-prints. Mr. Braun is of the opinion that these blue-prints were sent to him by the Cooling Tower Company at that time and were later returned, and your information, Mr. Foulds, is that these blue-prints are correct. We do not want to spend any time in trying to prove them. If you are trying to prove the structure that [156—20] was actually erected at Martinez, this is a round-about way of getting at it.

Mr. FOULDS.—I think I could describe the tower briefly, and will be very glad to do so to save time, if Mr. Braun will stop me if I am incorrect. I have seen a great many of the plaintiff's towers, and I presume this tower was the same as the others.

Mr. TOWNSEND.—If you want to find out about that tower, why don't you ask Mr. Braun what its construction was?

Mr. FOULDS.—I was trying to.

The WITNESS.—The transverse deck members were bolted to columns, I believe that they were bolted, according to the solid white marks on this drawing, but the solid white marks are not marked as being holes for securing the transverse deck members.

The COURT.—Haven't you some witness, Mr. Foulds, who is familiar with these blue-print?

Mr. FOULDS.—Unfortunately, our man here has been taken ill, and he is unable to be here, and I

(Testimony of Carl F. Braun.)

fear that it might be necessary for me to take the stand—of course, I do not want to—in order to explain them; I hoped that perhaps I could do it through Mr. Braun, himself.

The WITNESS.—Well, now, can I—

Mr. TOWNSEND.—I would not volunteer anything, Mr. Braun, unless the Court or counsel desires it. I may say that this Shell tower erected in 1915, I do not understand, is contended as being an infringement.

The COURT.—I do not think it is. I suppose the idea is that the details of this tower are such that your contention would be that the patent as issued to the defendant was a very similar device in some way. [157—21]

Mr. FOULDS.—The identical thing, and I want the Court to understand this.

Mr. TOWNSEND.—He is trying to anticipate the defense in this matter. I have no objection to his putting in his evidence at the proper time.

Mr. FOULDS.—I want to show what the defendant is doing now.

The COURT.—Proceed.

THE WITNESS.—I believe that part of the drawing refers to the place where the deck members are bolted on. It does not show it on the drawing, but possibly that is what is intended.

Mr. FOULDS.—Q. I refer you to the sheet marked "109," the characters IP refer to intermediate posts between the corner posts, do they not?

(Testimony of Carl F. Braun.)

A. Intermediate posts, on the drawing it is entitled.

Q. By referring to this drawing of the intermediate posts, what is the diagonal line? You have turned this drawing with the left-hand side to the bottom, have you not?

A. What diagonal line, please?

Q. The diagonal line just above the letters IP-2 on the lower right-hand corner when the drawing is turned with its left-hand side downward?

A. It is probably a member for supporting the louver, and the louver boards are laid upon that.

Q. The louvers were supported by supports running in that manner, were they not? A. Yes.

Q. What is that horizontal piece at the top, running from the top of the louver to the vertical tower?

A. That is a small member extending from the column to an outside member.

Q. And was the horizontal deck frame substantially a continuation of this horizontal louver support? A. No.

Q. It was extended in the same line, was it not?

A. This horizontal support is a walk support. You made the statement [158—22] that it was a horizontal louver support.

Q. Isn't it a member secured to the tip of the louver, or approximately so, and to the vertical column?

A. It is a member secured to the vertical column and the outside vertical member.

(Testimony of Carl F. Braun.)

Q. You find there a right-angle triangle frame for the louver, the louver being laid on the inclined line of the triangle, do you not?

A. I find a four-sided figure.

Q. Will you point out the four-sided figure?

A. The four-sided figure is $2\frac{1}{2}$ inches long on the outside.

Q. You refer to the position between the two bolt holes where the angular and horizontal members join? A. Yes.

The COURT.—How would that be four-sided?

A. This is a side out here.

Q. On the outer part. On the inner part it would be a triangle?

A. That would be circular, and that is not a triangle.

Q. I cannot see it.

A. Suppose we move this a little farther down.

Q. Do not these two members meet at this point?

A. No. This is another member, here.

Mr. FOULDS.—Q. The towers that you erected in 1915 at the Shell refinery in Martinez had these louvers extending all around the four sides of the tower, did they not? A. Yes.

Q. At the top of this tower the water was delivered and spread over a distributing deck. Is that correct? A. Yes.

Q. That distributing deck comprised spaced bars running laterally of the tower, each bar being grooved longitudinally?

A. Longitudinally of the bar?

(Testimony of Carl F. Braun.)

Q. Yes. A. Of the bar, yes.

Q. And these troughs formed by these longitudinal grooves were dammed at the end?

A. Yes, and at intermediate points. [159—23]

Q. So that the water overflowed the sides of these distributing bars? A. Yes.

The COURT.—The water did not go beyond this point, but it was checked by that so that it went over the side? A. Yes.

Mr. FOULDS.—Q. Ran over in a thin film to the deck below. Is that correct?

A. It fell to a deck below.

Q. How far below the deck was this drip deck, approximately? A. I would say 40 inches.

Q. The drip deck below this distribution deck that you have referred to was composed of slats running at right angles to the slats of the distributing deck? A. The deck below?

Q. Yes. A. Was composed of slats.

Q. Yes, running at right angles to the slats of the distributing deck. A. Yes.

Q. And these slats were spaced apart and grooved, were they not, on their upper face? A. Yes.

Q. And they ran longitudinally of the top?

A. Yes.

Q. How many of these drip decks were there?

A. Four.

Q. There were four of these drip decks, and then another distributing deck, was there not?

A. No.

Q. Was there not another distributing deck intermediate— A. In these towers?

(Testimony of Carl F. Braun.)

Q. Yes. A. In the towers that were erected?

Q. The towers that were erected in 1915.

A. The parts for which we purchased?

Q. Yes. A. No.

Q. You did not use any distributing deck intermediate the top and bottom of the tower? A. No.

Q. Were the bars of these decks below the top deck all positioned longitudinally of the tower?

A. I believe they were.

Q. Then the only deck the bars of which ran laterally was the top deck? A. Yes. [160—24]

Q. You do not recall another deck running cross-wise?

A. I do not recall any other deck running cross-wise.

Q. At the bottom of the tower there was a tank into which the water, drip water, was collected.

Is that correct? A. Yes, that is correct.

Q. About a year later you enlarged one of these towers, didn't you? A. Yes.

Q. That was the tower No. 2, situated at the east?

A. I believe it would be approximately at the east.

Q. What enlargement did you make? How did you enlarge it?

A. We built an addition to the tower.

Q. You mean you lengthened it?

A. We lengthened it.

Q. This, then, was put on the end away from tower No. 1? A. Yes.

Q. Was the construction of this addition the same as the construction which you have already described? A. No.

(Testimony of Carl F. Braun.)

Q. In what respect did it differ?

A. It differed in the design of the main deck boards.

Q. By the main deck boards you mean what?

A. The longitudinal deck boards, the cooling decks. It differed in the manner in which these decks were spaced and secured to the supporting members. It differed in the design of the redistributing deck; it differed in the design of the transverse launders at the top of the tower; it differed in the design of the overflow distributing troughs at the top of the tower, the primary overflow distributing troughs, and it differed in some structural details.

Q. However, it formed, with the old part of the tower, a complete unit?

A. It was built to conform to the general architectural appearance of the first tower.

Q. When was that tower erected, or enlarged, rather?

A. In 1916; I believe that can be shown from records better than [161—25] from my memory.

Q. Did you ask the Cooling Tower Company for a license to do this? A. No.

Q. You did not inform the Cooling Tower Company in any way of this work that you had done, did you? A. Not that I remember.

Q. After you completed the two towers that you first constructed there, did you put the Cooling Tower Company's name-plate on the towers?

A. I do not remember that.

(Testimony of Carl F. Braun.)

Q. I call your attention to this letter asking that that be done. Do you recall the name-plate of the Cooling Tower Company—do you recall seeing them? A. I have seen their name-plates.

Q. Don't you recall the name-plates that were affixed to these towers?

A. I recall that they requested it, but I don't recall how or when it was done.

Q. You remember that they sent you the plates to be put on the towers, do you not?

A. I remember a letter from them asking that these plates be put on the tower.

Q. You don't remember whether you executed it? A. No, I don't remember.

Q. When you reconstructed the towers, you put your name-plate on them, didn't you?

Mr. TOWNSEND.—What do you mean by "reconstructed the towers"?

Mr. FOULDS.—Q. You rebuilt these towers, didn't you?

The COURT.—You mean the last time, or this time when he built this extension?

Mr. FOULDS.—I mean later, after that.

A. I rebuilt the towers for the Shell people at Martinez.

Q. These towers that you have described up to this time were razed and other towers constructed on that site? A. Yes. [162—26]

Q. By you? A. Yes.

Q. When were these new towers constructed on

(Testimony of Carl F. Braun.)

the site of the old towers? A. I believe in 1920.

Q. By the defendant? A. Yes.

Q. Have you a photograph of these towers? Can you point out a photograph of the new towers?

A. It is not here.

Mr. TOWNSEND.—Counsel referred to a catalog, Bulletin No. 101, of C. F. Braun & Co. Have you any objection to our offering this in evidence at this time?

Mr. FOULDS.—If you want to offer it, I have no objection.

Mr. TOWNSEND.—I ask that it be introduced in evidence.

(The document was marked Defendant's Exhibit "C.")

The COURT.—Is that your exclusive business, the manufacture of cooling towers, or have you manufactured other things, also.

A. We manufacture other things, metal products.

Mr. FOULDS.—Q. Prior to the time you started in this cooling tower business you were merely selling agents for others, were you not?

A. No, we were not agents; we were construction engineers; we bought the products and sold them. We were not agents.

Q. You were selling representatives?

A. No, we were not selling representatives.

Q. You were selling goods for others?

A. We were buying and selling.

Q. But you were not doing any manufacturing, at all?

(Testimony of Carl F. Braun.)

A. We were designing plants, buying and selling.

Q. Did you use a photograph of this Shell Company tower erected in 1915 on your circulars as your own tower?

A. No. We used them on our circulars.

Mr. FOULDS.—Have you one of those circulars, Mr. Townsend?

Mr. TOWNSEND.—We have not. If you have one we would be [163—27] very glad to have you offer it.

Mr. FOULDS.—Q. You recall that you used a reproduction of that picture on your circulars?

A. I used it, either that or a similar photograph, a photograph of these towers.

Q. Referring to Plaintiff's Exhibit 10?

A. Yes.

Q. Prior to that, you had never issued any advertising literature showing a cooling tower?

A. I do not believe that we had.

Q. Then this plaintiff's cooling tower at the Shell Company refinery at Martinez was the first cooling tower that you had ever erected?

A. No, it was not.

Q. The first cooling tower of this type, the other type being the Alberger forced-draft tower?

A. The Alberger tower was of a different type than your tower.

Q. This is the only tower of this type, the first tower of this type? A. Of that type, yes.

Q. Did you find the open type tower more satisfactory than the closed type?

(Testimony of Carl F. Braun.)

A. I believe that for most conditions the open type is more satisfactory than the closed type.

Q. Do you make any closed type tower now?

A. We do not make the closed type tower now.

The COURT.—The closed type is the forced-draft type?

A. Yes. It is usually a cylindrical affair that looks something like a chimney, about 40 feet high, and it is filled with grids over which the water trickles, air being blown into the bottom by a fan.

Mr. FOULDS.—Q. Now, referring to these old towers that you first put up at the Shell Company plant did you have a series of superimposed decks with openings or perforations through which the water fell successively? A. Yes.

Q. And the troughs of this top deck were dammed or closed so [164—28] that the water would be distributed evenly over the surface of the deck below? A. Approximately.

Q. Now, that also existed in the last tower that you built, you say, about 1920? A. Yes.

Q. Did each of the decks have a series of rather closely-spaced parallel trough members? A. Yes.

Q. Referring to the tower which you erected in 1920, there were uprights at the corners of the towers with intermediate uprights between them?

A. Yes.

Q. And there were ten or eleven horizontal decks supported by these uprights?

A. Yes—I am not certain of the number of the decks, but approximately.

(Testimony of Carl F. Braun.)

Q. At the bottom of the tower was a collection tank for the water? A. Yes.

Q. The water to be cooled was brought to the top of the tower by a flume and distributed over the top deck? A. Yes.

Q. These top decks were formed of drip bars which were grooved longitudinally? A. Yes.

The COURT.—We will be in recess until two o'clock.

(A recess was here taken until two o'clock P. M.)
[165—29]

AFTERNOON SESSION.

C. F. BRAUN, direct examination (resumed).

Mr. FOULDS.—We were speaking of the towers that you erected in 1920, just before recess, and you were describing those towers at Martinez.

A. We were speaking of the towers of 1920.

Q. Yes, the last tower. The top deck of that tower was composed of bars of wood grooved longitudinally for their length and laid laterally on a supporting frame, were they? A. Yes.

Q. Those troughs were positioned by splines running across them, weren't they? A. No.

Q. Weren't there splines set in these trough bars, running across the bars?

A. No, there were no splines.

The COURT.—What are splines.

Mr. FOULDS.—Q. Weren't there pieces of wood set down in the grooves?

The COURT.—I don't know what "splines" are.

Mr. FOULDS.—Splines are spacers used to posi-

(Testimony of Carl F. Braun.)

tion the bars. In the bars that run longitudinally of the deck, these splines are made of strips of metal which are bent down to form a loop between the bars, to separate them.

The COURT.—It is only to hold them in position?

Mr. FOULDS.—Yes.

Mr. TOWNSEND.—We object to his interpreting “splines” the way he does, as strips of metal. If you refer to the patent of the plaintiff in suit you will see that the word spline is a little wooden block fitted into a groove between the slats; it has a specific definite meaning, and by no stretch of the imagination can you call these metal strips of the defendant a spline. It is only one of the unwarranted ways that they are attempting to stretch this patent far beyond [166—30] the elastic limit.

The COURT.—I had no conception of what they were.

Mr. FOULDS.—What do you understand to be a spline?

A. I understand a spline to be a loose piece of wood or other material fitting into groves.

Q. Now, I call attention to your own patent, No. 1,334,515, dated March 23, 1920, line 85 on the second page, in which you say that your distributing deck bars or trough members are held spaced apart and dammed by splines. Do you use that construction?

A. We use the construction shown on the print.

Q. And the description described in these lines?

(Testimony of Carl F. Braun.)

A. I think that that is an improper use of the word spline.

Q. You use it in your own patent, don't you?

A. Apparently so.

Q. And your drip bars or trough members are held apart and spaced by something that was called a spline in that patent?

Mr. TOWNSEND.—That is not a fair statement of what the patent shows.

Mr. FOULDS.—It is his own patent, and he ought to know. Can you answer that question?

A. The troughs are held apart.

Q. Will you answer that question "Yes" or "No."? A. No.

Q. Then how do you explain the statement in your patent that these troughs or bars are held apart or spaced by splines?

Mr. TOWNSEND.—If your Honor please, that is not a correct statement of what the patent says. It says that these channels are dammed by splines 28 or an element which is called a spline. Damming the channel and spacing the bars is a very different thing.

The COURT.—I think it is proper to ask him what that means.

Mr. TOWNSEND.—Yes, I have no objection to that, but I object to the interpretation he puts upon it.

The COURT.—He has pointed out the distinction, anyway. [167—31] Personally, I cannot see that

(Testimony of Carl F. Braun.)

it makes the slightest difference whether they were, or not.

Mr. FOULDS.—I submit your Honor is correct. That is our contention.

Q. I notice you say “dammed” there. Do they serve the purpose of damming the water, besides their function of holding the drip bars apart?

A. Actually, it is a long piece of wood with a nail into each board. How they happened to be called splines I don't know.

Q. Do they dam the water?

A. It is a long board.

Q. That is, the little piece, I mean.

A. Yes, they dam the water.

Q. I call your attention to the cut taken from your catalog, Defendant's Exhibit “C.”

A. This is correct, but counsel possibly has a model there.

Q. I am conducting the examination now. I call your attention to a cut of your tower, dated August 15, 1920. The upper view shows the top deck with the distributing troughs, does it not? A. Yes.

Q. Will you indicate the splines which you say in your patent space apart and dam the troughs?

A. They are not splines, but they are referred to by number, and this is the piece here.

Q. Will you draw a line to it and mark it with the letter “A”?

A. Yes.

The COURT.—Is that that strip running through there? A. Yes.

(Testimony of Carl F. Braun.)

Mr. FOULDS.—Q. Are there also end splines?

A. Yes—not end splines, but an end piece.

Q. That is what you call in your patent a spline, is it not? A. Yes.

Mr. TOWNSEND.—Figure 13 shows a spline.
[168—32]

Mr. FOULDS.—The end splines are on the ends of here, are they not?

A. It is not shown on the drawing that way. There is a piece across the end, as indicated by my mark A.

Q. Referring to the lower figure on this cut of your tower dated August 15, 1920, that shows the intermediate or lower deck, does it not? A. Yes.

Q. And those longitudinal drip bars are held apart and spaced by what you call a crimped ribbon? A. Yes.

Q. Will you indicate that by the letter B?

A. Yes.

Q. Those lines crossing the deck are all of that construction, are they not? A. Yes.

Mr. FOULDS.—I offer in evidence the cut referred to by the witness.

The COURT.—Let it be admitted.

(The cut was marked Plaintiff's Exhibit 49.)

Mr. TOWNSEND.—Mr. Foulds, I understand the cut that you just introduced, the sheet with the two cuts as Exhibit 49, is a reproduction of the Fig. 15 on page 27 of Bulletin No. 101, and Fig. 17 on page 28, Exhibit "C."

Mr. FOULDS.—That is correct. The cut

(Testimony of Carl F. Braun.)

marked "Fig. 15" on page 27 is the top view, and the cut marked "Fig. 17" is the lower view.

Q. What is the object of these crimped ribbons?

A. To hold the deck down.

Q. And to permit longitudinal expansion without buckling of the boards? A. Yes.

Q. In the wetting and drying of these decks the slats or boards are apt to buckle? A. Yes.

Q. And this would cause them to approach so closely together that the water would not flow evenly over the side: Isn't that true?

A. No; they probably warp in the other direction; they probably warp up and down. [169—33]

Q. But the object of your crimped ribbon is to keep them evenly spaced and in an even position both up and down and sideways?

A. To secure them to the transverse members.

Q. I call your attention to your patent.

A. (Continuing.) And also it does space them.

Q. The last five lines on the first page of your patent No. 1,334,515:

"Furthermore, some woods have longitudinal expansion, which may be accommodated as the slats are not fixed rigidly to their supports, thus preventing buckling." That was your object in using these spacing ribbons?

A. That is one of the advantages of the ribbons.

Q. Was that also the object and advantage of the spacers used by the plaintiff in your first tower?

A. In the first tower at Martinez, you mean?

Q. Yes.

(Testimony of Carl F. Braun.)

A. No, I do not think that their construction permitted of longitudinal expansion.

Q. Wouldn't the slats slide longitudinally on their spacers?

A. They would, if there were any means of holding the deck down, if the deck were fastened down.

Q. The spacers used by the plaintiff permitted the slats to expand longitudinally, and also up and down, didn't they?

A. No; the spacers didn't hold the deck down.

Q. The spacers permitted them to expand longitudinally, to slide?

A. It didn't hold the deck down.

Q. Isn't that correct, that the spacers used by the plaintiff permitted the boards to expand longitudinally?

A. The decks could not expand longitudinally, because they were secured down by another device than the spline.

Q. But the spacer used by the plaintiff and shown in the drawing [170—34] referred to this morning—

A. (Intg.) They would not interfere with the longitudinal expansion of the deck boards if they were otherwise free to expand.

The COURT.—Is there much longitudinal expansion?

A. There is considerable expansion, the boards have a tendency to warp.

Mr. FOULDS.—Q. Had you ever seen any spacer

(Testimony of Carl F. Braun.)

device between the slats prior to the plaintiff's device? A. Not that I remember.

Q. Had you ever seen any louvers such as those used by plaintiff before you saw the plaintiff's device? A. Yes.

Q. Where?

A. I saw many in New York City, Brooklyn.

Q. Were they large louvers such as shown by the plaintiff? A. Yes.

Q. The appearance of plaintiff's tower, you don't think it had a characteristic and distinctive appearance? A. Yes.

Q. Where had you seen another tower like that with that characteristic appearance?

A. In New York City, and I think at Brooklyn.

Q. At what place?

A. I do not remember. I saw several towers.

Q. Do you know whether it was a plaintiff's tower? A. Yes.

Q. It was a plaintiff's tower?

A. No, it was not.

Q. Do you know whose it was?

A. As I remember, I saw towers built by Burhorn, and I am quite certain that I saw towers built by Hart, of quite similar construction.

Q. Don't you know, as a matter of fact, that Burhorn never built a wooden tower?

A. No, I don't know that.

Q. Did you ever see a wooden tower made by Burhorn? A. Not that I remember.

(Testimony of Carl F. Braun.)

Q. Have you ever seen a wooden tower made by Hart prior to 1915?

A. I think most of the towers that I saw in the East were steel. [171—35]

Q. You never saw any wooden louvers on a tower before 1915?

Mr. TOWNSEND.—Are you drawing a distinction between a wooden louver and a wooden tower? I understand there is quite a distinction.

Mr. FOULDS.—I am examining the witness.

A. I have understood you in saying a wooden tower to mean a tower constructed substantially of wood. Up to the time that we built this type of tower, the large louver type of tower, built substantially of wood, I had not seen any towers built by any concerns of this type, built substantially of wood.

Q. The plaintiff's tower was the first one?

A. The plaintiff's tower was not built substantially of wood. It was substantially a steel structure.

Q. But the louvers in the plaintiff's tower were of wood, were they not?

A. The louvers of the plaintiff's tower were wood.

Q. Had you seen any large louver wooden towers anywhere else before?

A. Not that I remember.

Mr. FOULDS.—That is all.

Cross-examination.

Mr. TOWNSEND.—Q. Is there a model pres-

(Testimony of Carl F. Braun.)

ent in court that would represent your present construction, or the construction such as you erected for the Shell Company in 1920?

A. Substantially as that model.

Mr. TOWNSEND.—In order to properly identify the model, I will ask that it be received in evidence and marked Defendant's Exhibit "D."

Mr. FOULDS.—I object on the ground that the witness says that his distributing decks were splined, and these decks are made of strips running across the top of the deck.

The COURT.—Does the question of what you call splines make any particular difference? [172—36]

Mr. FOULDS.—I think the splines are important, and these distributing decks are clearly constructed by merely laying slats across the deck.

Mr. TOWNSEND.—We will explain that.

The COURT.—If that condition exists, and it becomes material at all, it will do no harm to have the model in. I will let it in.

Mr. TOWNSEND.—The terminology, of course, is not half as material as the function that is performed by a certain element. Now, the function, we will claim and show, performed by our construction, is entirely different than the function and mode of operation and purpose of the plaintiff's patent. I want to have that clear.

Q. Mr. Braun, will you be good enough to briefly describe the model, Exhibit "D," just referred to?

(Testimony of Carl F. Braun.)

The COURT.—Are you going to have the man that made it describe it?

Mr. TOWNSEND.—I think Mr. Braun can describe it.

The COURT.—I can readily see that general descriptions are not going to help me much, because it is evident that the general features of the construction are similar; we will have to go down to the question of detail. It seems to me we had better have that described by the man who can describe it minutely and in detail.

Mr. TOWNSEND.—I will ask Mr. Braun a question:

Q. Mr. Braun, what is your acquaintance with this model? A. I am familiar with this model.

Q. Did you have anything to do with its making?

A. Yes, I instructed that it be made, and I gave instructions regarding it, and I saw it during its construction frequently.

Mr. TOWNSEND.—I think if the Court will step down here a [173—37] minute to the model and we have a brief description, it will show somewhat the operation of it.

Mr. FOULDS.—I object on the ground it is not proper cross-examination.

Mr. TOWNSEND.—Q. Will you describe the model, Mr. Braun, and state at the same time how this compares with the Shell 1920 tower you erected, and other towers erected by you and your company?

A. The cooling of the water in the cooling tower

(Testimony of Carl F. Braun.)

is accomplished by bringing about intimate contact between the water and air. In this type of tower the water is distributed by some means at the top and flows successively from deck to deck to the basin underneath, the wind carrying the air across the tower, causing contact between the air and the water, the water emerging at the bottom cooled.

Q. The real purpose is to expose as large a surface of the water as possible?

A. Yes. The center part of the tower, as bounded by the columns, roughly, has to do with exposing this water to the air; the wind, in blowing it sometimes has a considerable tendency to carry particles of water away, and these louvers on the sides of the tower are inserted to intercept the particles of water that are being blown by the wind away from the tower and to return them to the tower.

Q. Might I mark the column you refer to A and the louvers B.

A. (Continuing.) As the direction from which the wind may blow cannot be controlled, these louvers are installed around the entire periphery or the exterior of the tower. In this model the louvers on one side, and on one end, have been omitted, so that the interior is accessible for view and discussion. Only portions of each deck are installed also, partly to save labor and partly so that we could see the construction of the tower. [174—38] The operation of the tower is that water is distributed into a flume.

(Testimony of Carl F. Braun.)

Mr. TOWNSEND.—Marked C.

A. (Continuing.) Water is delivered by a pipe or other conduit into this flume at the top of the tower; at intervals along the tower are other flumes, D, smaller flumes, into which the water from the main flume is distributed, this flume carrying the water across the tower, and from this flume the water is distributed into, in this particular case, four overflow troughs, from which the water overflows and drops onto troughs that run transversely of the tower from which the water again overflows and drops onto this longitudinal cooling deck, which really extends from end to end of the tower.

Q. The overflow is from D, representing the brass troughs: Is that correct? A. Yes.

Q. Then the overflow from the brass troughs is onto the upper deck, which we will mark E, distributing deck E? A. Yes.

Q. And from the distributing deck E it drops onto the lower decks which we will indicate generally by F: Is that correct?

A. Yes. As the water drops from deck to deck and runs over the deck boards and down between them and around and off of them, the wind is blowing, generally from one direction, and the tower is usually set across the direction of the prevailing wind, so that the wind will blow across the tower; if the wind is blowing rather briskly across the tower, the water, as it drops from deck to deck, will be briskly blown toward the lee side of the

(Testimony of Carl F. Braun.)

tower, so that finally, near the bottom, the water will be going down, largely down the lee side of the deck, while the windward side of the deck is dry. To overcome that difficulty, we install a redistributing deck, which consists of troughs, G; these extend [175—39] transversely of the tower, dammed at each end; these troughs serve to carry the excess water across, some of the excess water going down the lee side of the tower back to the windward side of the tower, and to start the water again in the condition of fairly uniform distribution over the tower.

Q. What happens from G?

A. The water then drops from deck to deck, down through the remaining cooling decks, and finally into the receiving basin or bond at the bottom of the tower. This redistributing deck is constructed in a manner similar to that in which the 1920 tower at the Shell Company was constructed, but not to the detail shown in my patent which was just under discussion.

Mr. TOWNSEND.—Exhibit "B."

The COURT.—This is a model, then, of the tower that you are now building, and the one that you built at the Shell Company in 1920?

A. Yes, there has been very little change. The method of holding this deck down can be seen very clearly. The deck F has a brass ribbon, a continuous brass ribbon, usually supplied in one piece the entire width of the tower, pressed down at intervals to provide spacing for the decks, and to per-

(Testimony of Carl F. Braun.)

mit of fastening to the transverse members; a nail, lag, screw, or some similar device is driven through this brass strip in each of these spaces. There is a large-sized model of it.

Mr. TOWNSEND.—The witness refers to a little model which I will ask to be marked Defendant's Exhibit "E."

(The model was marked Defendant's Exhibit "E.")

A. Boards of this size split readily, and one of the objects of this strip is to prevent nailing through this rather light board; the nails go into the scantling which extends across the tower.

The COURT.—Is that about the size that you use in this tower?

A. That is about the size; in fact, I think it is [176—40] exactly.

Mr. TOWNSEND.—Exhibit "E"? A. Yes.

Q. You mean it shows the deck slats which are marked F?

A. This distance is much greater—

The COURT.—I know, but I mean to say the width and groove is about the same?

A. Just about.

Mr. TOWNSEND.—Q. How about the metal strip H of this model Exhibit "E"? Those represent life-sized construction?

A. Yes, approximately. I think they are exactly the life-sized construction. Returning to the distributing deck, you will note that this is a continuous board—you will note that the member I

(Testimony of Carl F. Braun.)

mark I is a continuous board extending across a large number of the troughs, and permanently secured to each trough by a nail; that there are no loose members here. You will also note that this metal strip H is a continuous strip usually extending across the entire width of the tower, and securely fastened by means of nails to the transverse deck-supporting member.

The COURT.—What represents No. 28 on your drawing in your patent, referred to as a spline?

A. This member, this member, and this member.

Q. What is marked I there?

A. I have explained that this model is a detail, a larger detail of this.

Q. I understand that, but this piece that dams off the trough is what is referred to as a spline?

A. That is the piece that is referred to as the spline.

Mr. TOWNSEND.—And is No. 28 in the patent?

A. Yes.

The COURT.—Where does that name come from? Is that a common name?

A. A spline is a very common name for a loose piece of wood used to join together two boards, such as, for instance, floor boards. You are doubtless familiar with the ordinary [177—41] tongue-and-groove construction in which floors are usually made, one member having a groove and the other having a tongue, and this being the tongue member and this the groove, the common use for the spline is where it is desired to join together two

(Testimony of Carl F. Braun.)

tongued members; then a loose piece is put in there like that (illustrating).

Mr. TOWNSEND.—You might explain it as a matter of record from the Coffey patent in suit, No. 1,010,020.

A. The Coffey patent shows that construction, the loose spline; Fig. 4, No. 7, shows such a loose spline—Fig. 7 and Fig. 8.

Mr. TOWNSEND.—Now, the model that the witness has referred to as representing a detail of the upper distributing deck is offered as Exhibit “F.”

(The model was marked Defendant’s Exhibit “F.”)

Q. Explain the continuation of the strips I and how they are set in there.

A. The boards marked I and 28 on Exhibit “F” are a larger detail of the part of the board marked I of the larger model D, and the construction is similar. The troughs are dapped and the board I is laid in this dap and securely nailed to each of the troughs whereby the troughs are held spaced apart and the grooves dammed.

Q. Does the nailing of the members I to the member E permit of any longitudinal movement of the members E?

A. Longitudinal of the tower?

Q. Relative longitudinal movement. Can one member E move with respect to the other member

(Testimony of Carl F. Braun.)

E if they are nailed down to the cross-member I?

A. No.

Q. Is there any provision for longitudinal expansion in this distributing deck?

A. No; the whole deck will expand, but one member cannot expand more than another member.

[178—42]

Q. I understand that these members I are simply plain boards which are rectangular in cross-section, cut into daps or grooves cut crosswise of the trough members E: Is that correct?

A. Yes.

Q. Will you just continue your description? You have not covered how the decks are supported on the cross-joists.

A. These cooling decks are supported by transverse members J, which also extend beyond the column A and receive the upper end of the louver panel.

Q. We might mark these extensions of J by the letter J-1.

A. The louvers are made in panels which are fabricated in the factory, drilled, and shipped out as fabricated members in this shape which are hoisted up and bolted. These panels also serve as structural members tying the entire structure together, and form a truss with the other members.

Q. You have longitudinal extending members to support the transverse members J, apparently; will you describe those?

(Testimony of Carl F. Braun.)

A. Which do you mean—these?

Q. Yes, which we will mark K.

A. Longitudinal members K tie the tower together longitudinally and carry intermediate deck-supporting members L.

Q. That is, the alternate deck-supporting members only extend out to here?

A. Yes, it is not necessary to extend them. These longitudinal members also extend beyond the end of the towers to receive the louvers in a manner similar to the way the transverse deck-supporting members extend to the louvers.

Q. These extensions we will mark K-1.

A. I will draw attention to the fact that the longitudinal member securing the redistributing deck trough at the center is not a dam, but is merely a piece of board nailed onto the top of the trough.

Q. That is so that the water can come back freely from the lee side?

A. Yes. This strip M serves the purpose merely of [179—43] holding it down, and this serves the double purpose of holding it down and damming it.

Q. In actual practice, what sort of metal-fastening devices do you employ, and why?

A. We employ brass, because of its long life. From experience, we found that steel will deteriorate very rapidly, and in many cases will cause the failure of the tower within a few years.

(Testimony of Carl F. Braun.)

Q. Have you any steel in this tower as you actually construct it?

A. No; in the tower that we actually construct, all material is similar to this model.

The COURT.—That is, your uprights, and all, are wood?

A. They are redwood, and these parts are brass; these bolts are brass; the deck ribbons are brass and copper; the tie rods are brass, as shown.

Mr. TOWNSEND.—Q. Will you explain a little more how the extensions J-1' and K-1 in co-operation with the louvers act as a support and strengthening members for your tower?

A. There are two types of loads in a cooling tower; one is the weight of the structure and of the water in the structure, and the other is the wind load, the load that tends to blow it over. One of the objects of extending these transverse members is to use the louvers as structural members, stiffening the entire tower and making the structure rigid as a whole. These louvers are bolted in between these transverse members J-1 and stiffen the tower from wind loads transversely by reason of the truss which is formed, and also stiffening the tower longitudinally by reason of the truss formed in this direction; that is, any tendency for the tower to move this way would be resisted by this portion in here.

Q. What height do these towers assume at times?

A. 30 to 35 [180—44] feet is about an accepted standard for cooling towers, and that height

(Testimony of Carl F. Braun.)

seems to have been used almost universally in fan towers, as well as atmospheric towers; it seems to be about the limit that people are willing to pump water. It costs money to pump water.

Q. What length have you had these towers constructed?

A. 300 or 400 feet as a maximum; from 10 or 12 feet to 300 or 400 feet.

Q. You have had single towers as much as 300 or 400 feet in length?

A. I think 380 feet was the exact dimensions of the longest single tower that we built. That, by the way, is shown in our catalog.

Q. What wind velocities do these towers have to withstand at times?

A. The resistance is usually expressed in pounds. It is usually expressed as 30 pounds per square inch; that is most structures are designed for a wind pressure of 30 pounds per square inch.

Q. Do you know what velocity the wind has attained where you have towers up, speaking in terms of miles per hour? Can you express it in that way?

A. I know that our towers have been exposed to severe gales; I know of one tower that was exposed to a very severe gale at Martinez, a gale that did a great deal of damage to shipping. I do not remember the velocity of the wind, but it was very high.

Q. And it successfully withstood that gale?

A. It successfully withstood that gale. Other towers have been exposed to very severe gales in the Taft district. There is nothing to break the wind in

(Testimony of Carl F. Braun.)

these valley places, and when it does blow, it blows very hard.

The COURT.—Where do you fabricate these members?

A. We now fabricate these at Alhambra. Alhambra is a small town lying [181—45] right between Los Angeles and Pasadena. We have a large shop there in which we fabricate even these parts; they are all drilled and these panels are fabricated, all ready to be assembled. One of the features of our tower is the fact that our field labor is reduced to a minimum; field labor is labor which cannot be controlled; it is liable to be very expensive, and also liable to result in very poor workmanship, so all of this work is done in the shop.

Mr. TOWNSEND.—Q. Prior to your building a tower of this construction, with the extension J-1 and K-1 that you mentioned, and the tying together of the tower by your louvers, had such a tower, to your knowledge, ever been constructed?

A. No. In the towers that I have been familiar with, the louver construction does not serve any structural function.

Q. Where no structural function is performed by the louvers, what do you depend upon to support the tower from collapse?

A. You must use a large number of internal braces of some kind or guy the tower by means of external guy rods in a manner similar to what you would guy a smokestack. The essential difference between this tower and the tower first built at Mar-

(Testimony of Carl F. Braun.)

tinez is that with this tower the deck supports and louver supports are one, and the louvers are tied firmly into these deck supports, so that the whole forms a very rigid structure, thoroughly tied together, and all members acting in harmony. In the other tower the deck supports—

Q. (Intg.) What other tower?

A. In the first tower built at Martinez, the deck supports are not related in any way, structurally, to the louvers; they are bolted, as shown on the drawing, by one bolt, so that they apparently serve no structural function other than to just hold the decks up, support [182—46] the deck portion.

Q. In these large-sized towers, what volume of water have you handled?

A. The largest installation that we have made is in Los Angeles; they have pumped over that tower, I believe, as high as 100,000 gallons per day.

The COURT.—In operation of condensation, for instance, of distillates, do they handle the water over again?

A. Yes, and that condensation in steam plants, where they are generating electricity, if a supply of cheap water, such as sea water, is not available, they condense their steam in the condenser by means of water which is circulated over and over again in the cooling tower. They do that in practically all ice plants. There is one out here at the National Ice Company.

Mr. TOWNSEND.—Q. Now, are you able to describe the first Shell tower that you put up in 1915,

(Testimony of Carl F. Braun.)

which tower we understand you purchased from Mitchell-Tappen Co. and erected, as heretofore indicated, at Martinez; describe it, and then compare it with the addition that you put on in 1916, and further compare it, if you will, with your present day construction.

A. The first two towers built at Martinez were substantially as shown on the drawings. These towers had steel main columns, from which the louvers were supported by small steel members. The decks were supported by transverse wooden members bolted at each end to the column. There was no connection structurally between the decks or the deck supports and the louvers or louver supports. The overflow troughs were of a tapered type; shown in one of the Coffey patents. The distributing deck was spaced by loose splines; the longitudinal decks were spaced by loose splines and secured to the transverse members by lag screws or nails. There was no redistributing deck in the tower. [183—47] That is briefly a description of that tower.

Q. Can you refer to a model which will illustrate the original 1915 Shell construction?

A. That is substantially the construction.

Q. Referring to the model which I will ask to be marked Defendant's Exhibit "G"? A. Yes.

(The model was marked Defendant's Exhibit "G.")

Q. Now, Mr. Braun—

(Testimony of Carl F. Braun.)

Mr. FOULDS.—I understand this model is illustrative and not supposed to be an exact copy?

Mr. TOWNSEND.—It is illustrative of the construction.

The WITNESS.—I would like to introduce one model to explain the construction of the deck.

Q. Will you take up the model which you want to explain?

A. Exhibit "H" is constructed in accordance with—

Mr. TOWNSEND.—The witness is referring to a model which I will ask to be marked Exhibit "H." There is another model which will be referred to in a minute, and it might as well be marked Exhibit "I," and there will be an enlargement of the Coffey drawings, which I will ask to be marked Exhibit "J."

(The models were marked, respectively, Exhibits "H" and "I," and the enlargement Exhibit "J.")

A. This is a model of the spline deck; the model is made from the patent drawings; it is not the exact construction that we now use.

Q. That is the construction which you had up there at Martinez for the Shell Company?

A. That is nearly the construction, but Exhibit "I" is the construction; but this will explain it more clearly.

Mr. FOULDS.—Is this the model of any particular thing, Exhibit "H"? [184—48]

Mr. TOWNSEND.—It is a model of the drawings

(Testimony of Carl F. Braun.)

of the Coffey patent in suit, a combination of Figs. 4, 5 and 6.

Mr. FOULDS.—Is this supposed to have been seen anywhere?

Mr. TOWNSEND.—Seen in the patent drawings.

Mr. FOULDS.—It is not a model of anything that exists. I am merely trying to make it clear on the record.

A. Not that I know.

Mr. TOWNSEND.—Made after the patent drawings?

A. Made exactly after the patent drawings.

Mr. FOULDS.—Q. As you understand them?

A. As I read the drawings. These are deck boards grooved, or the deck member, on each side, and secured at each end; and intermediate between the ends are loose splines which space these boards—spline 7 spaces the boards. The object of these splines appears to be to space the boards intermediate the place where they are fastened. These boards are fastened securely at each end to a solid member, and no provision is made for the independent expansion of any one of these boards. These splines serve solely as spacers, as this board cannot expand more than this board without moving this board. These grooves on the bottom are shown on the patent and were used on the first Martinez tower.

This is more nearly a correct model of the construction used at Martinez, Exhibit "I." The deck supports actually were approximately 3 feet apart

(Testimony of Carl F. Braun.)

instead of one foot, as shown. These boards are grooved. The boards 6 are grooved on both sides, and have splines 7; the boards are fastened down to the transverse deck-supporting members by nailing. There is no provision, therefore, for independent longitudinal expansion of these boards. The splines serve solely as spacers, providing for no longitudinal [185—49] expansion, and did not secure the board to the transverse member.

Mr. TOWNSEND.—Q. You have not described the actual tower construction. You have only described the deck construction.

A. I have described vertical posts, and louvers, and the small brackets.

Q. Describe the louvers.

A. The louvers are made of continuous boards.

Q. You have not made any reference that I can recall to Exhibit "G."

A. Exhibit "G" represents diagrammatically the structural features of the tower.

Q. Now, in this Model G, the vertical marked 1, how would you term this? A. Posts.

Q. Which posts support what?

A. Support the horizontal deck-supporting members 9 secured in the Martinez towers by one bolt at each end.

Q. What are these members 11 that are external and outside of the parts 1?

A. They are vertical members tying the louver brackets in a vertical plane together.

Q. In any of these blue-prints here that have been

(Testimony of Carl F. Braun.)

referred to by counsel for plaintiff, do you find the vertical column I shown, and the vertical louver support 11?

A. The vertical column I is shown.

Mr. FOULDS.—Referring to drawing 59, will you have him put a letter on there?

Mr. TOWNSEND.—Q. Will you mark that drawing No. 59 and the columns by the reference No. I with a circle around them?

Mr. FOULDS.—Mark it with the same letter that he has on the illustrative model.

Mr. TOWNSEND.—You have indicated in yellow pencil the vertical column 1? A. Yes. [186—50]

Q. Does this drawing No. 59 show vertical louver supports 11; if so kindly mark them. A. Yes.

Q. What would be the relative position of a louver in that same view? Mark that number 12, if you will, corresponding with Model G.

A. It is marked right here.

Q. Now, what contribution to the strength of the tower, if any, did the louvers and their supports in the 1915 tower bear to the rest of the structure?

A. None.

Q. For what reason?

A. They are not connected; the transverse members supporting the deck and tying the columns together are not connected to any of the louver members.

Q. And that relationship is explained, I believe, already, in connection with your own model Exhibit "D"? A. Yes.

(Testimony of Carl F. Braun.)

Q. Do you find a counterpart in the blue-print No. 59 of brace member 14 of Exhibit "G"?

A. Yes.

Q. Will you kindly mark that? A. Yes.

Q. Now, this drawing No. 59, which has been turned 90 degrees, in order to illustrate what you have said, I will ask you, if you will, to kindly mark where the bottom and the top are by those words in block letters? A. Yes.

Mr. TOWNSEND.—It is clear to your Honor, the difference between this 1915 machine and the 1920 machine, represented by Exhibit "D."

The COURT.—I think that is apparent.

Mr. TOWNSEND.—Q. In regard to this addition of 1916, what features, if any, employed in the original 1915 tower did you use? I don't know whether that has been made clear as to your deck construction, or not.

A. We made the tower conform architecturally to the other tower, but we did not use the spline deck construction. My testimony is quite complete [187—51] on that. Do you wish any more?

Q. Yes, cover it again, if you want to, and whether it bears any relation to the exhibit Model E.

The COURT.—I understand that. Was the construction used in Exhibit "E" used in the addition to the 1915 tower?

A. The construction used in Exhibit "E" was a construction that has not been shown. Pardon me,

(Testimony of Carl F. Braun.)

the construction used in the addition has not been shown.

Mr. TOWNSEND.—Q. Will you describe that construction?

A. The decks were held down--an angle-iron was punched at intervals so that a part of the wall of the angle would extend down from the angle, remaining part of the angle, would project from it possibly half an inch. That angle was laid on top of the deck board and secured by nails or lag screws to the transverse deck-supporting members. The punched-down portion of the angle served as spacers for the deck. Is that clear?

Q. Yes, it is perfectly clear.

A. This angle was a continuous piece, extending from one side of the tower to the other, and was fastened securely at intervals across the top.

Q. I show you a pencil sketch and ask you if that illustrates the angle-iron construction you have just described? A. Yes.

Q. Just tell us what the figures represent, and what the reference letters A, B, and C represent.

A. Fig. 4 shows the angle with the pressed-down lip B, and end view of the angle; Fig. 1 also shows the pressed-down lip B; the boards C placed between the pressed-down lips of the angle are shown on Fig. 2.

Mr. TOWNSEND.—This sketch is offered in evidence as Defendant's Exhibit "K."

(The sketch was marked Defendant's Exhibit "K.") [188—52]

(Testimony of Carl F. Braun.)

Q. Now, I do not understand, Mr. Braun, that in this 1916 addition you used the complete structure that you use now, and represented by Exhibit "D," where you had the joist extensions and the louver supports.

A. No, I did not. We made the tower conform architecturally to the existing tower.

Q. Before undertaking the addition to the Shell tower in 1916, did you seek a legal opinion as to the scope of the plaintiff's patent? A. I did.

Mr. FOULDS.—I object to that as immaterial.

Mr. TOWNSEND.—Q. Did you act on the advice given? A. I did.

Mr. FOULDS.—I suppose it may be assumed that that advice, your Honor, was that the claim of the Coffey patent were construed and that there was no infringement.

The COURT.—I would naturally assume so.

Mr. TOWNSEND.—I want to show that this company proceeded in good faith in what they did.

A. I was informed that—

Mr. FOULDS.—I object to that, if your Honor please.

The COURT.—What difference does it make what he was informed?

Mr. TOWNSEND.—They have attempted to show wilful infringement and purloining of plaintiff's patent, and while, of course, were infringement shown, it would not excuse the defendant, it would show he proceeded in good faith.

The COURT.—If you infringe you infringe.

(Testimony of Carl F. Braun.)

Mr. TOWNSEND.—I will not press the matter.

Q. What line of machinery and implements other than cooling towers, themselves, has your company made and sold?

A. We manufacture fluid heaters, coolers, heat exchangers, [189—53] condensers, and a number of mechanical specialties, such as by-pass valves, strainers, filters, and expansion joints.

Q. I will ask you to produce your catalog of products, if you will.

A. This is the catalog of our products.

Mr. TOWNSEND.—I will call particular attention to the disclosures in here between pages 95 and 129, particularly relating to cooling towers, and ask that this catalog which is termed "General Catalog of C. F. Braun & Co., Copyrighted 1923," be received in evidence as Defendant's Exhibit "L."

The COURT.—Is there anything to show the date of its publication?

Mr. TOWNSEND.—It is copyrighted in 1923.

The COURT.—Published this year?

Mr. TOWNSEND.—I assume that is so.

The WITNESS.—This was published in the last 60 days.

Mr. FOULDS.—I submit it cannot be material, if published in the last 60 days.

The COURT.—It will not do any harm.

(The document was marked Defendant's Exhibit "L.")

Mr. TOWNSEND.—Before we get off this Shell Company 1915 construction, I meant to ask you a

(Testimony of Carl F. Braun.)

question in regard to Cooling Tower Company's catalog, Plaintiff's Exhibit No. 21, and calling attention to Cut No. 14 of Section A, page 1, is there anything in there that corresponds to the Shell construction at that time and to the Model G, and the blue-print to which reference has been made?

A. This structure looks quite similar to the Shell structure; the scale is small; it is rather difficult to identify. I see no members which we talked about to-day as forming an angle of about 15 degrees to the horizontal. [190—54]

Q. Do you see members corresponding to members No. 1 of Exhibit "G"? A. I do.

Q. Will you be good enough to mark that on this Cut No. 14 in this catalog? A. No. 1?

Q. Yes. A. Yes.

Q. Do you see in this Cut No. 14 members corresponding to the louver support 11 in this model?

A. Yes.

Q. Kindly mark that. A. Yes.

Q. Would that louver construction have any effect at all in stiffening that structure against the wind?

A. No; it adds no stability to the structure.

Q. Will you indicate on this Cut No. 14 the position of the louvers which are marked "12" on the model G?

A. There are none on here.

Q. What are these diagonal lines connecting 1 and 11? A. They correspond to 13.

Q. Of the model? A. Yes.

(Testimony of Carl F. Braun.)

Q. The louvers, however, would rest on 13; as I understand, the louvers would be supported on 13?

A. Yes, I would like to answer just a little more on that question of strengthening the structure. If a wind blows against this and tends to cause this column to come over and this angle to open up, these do not in any way retard that.

Q. How about the louvers here?

A. They are only on the ends, and these towers are very long. Also, these are not securely fastened to these members.

Q. The louvers 12? A. The louvers 12.

Q. To the vertical members 1? A. Yes.

Q. Where was your company located at the time the Shell towers were erected. A. San Francisco. [191—55]

Q. For how long a time did you continue your plant here in San Francisco and office?

A. Until the latter part of 1922.

Q. How long had you been in business as erecting engineer in 1915? A. Since 1908.

Q. Will you just briefly give us your experience with reference to this particular matter, as to where you got your technical training, and what training you had right up to the time of the inquiry of the Mitchell-Tappen Co. in regard to cooling towers at the end of 1914?

A. I graduated in 1907 from the Department of Mechanical Engineering at Stanford University, and immediately became engaged in my profession with a concern which I believe, was called the Stand-

(Testimony of Carl F. Braun.)

ard Engineering Construction Company; shortly after that they formed a separate company to handle particular mechanical lines and mechanical business, carrying on construction of power plants, and pumping plants, and the like, and I think in the latter part of 1908 my associates and I bought the company, and I became president of it; we engaged, as constructing mechanical engineers, in designing power plants, pumping plants, we built a number of municipal water works, we installed large condensing equipment, a number of large tanks, built, I think, two complete municipal water works, designed some boiler plants, electric generating stations and similar work. We purchased a large part of the machinery from Eastern connections and sold it either unerected or erected, or incorporated in these plants. Among the people that we did considerable business with was the Alberger Pump & Condenser Company, which built condensers, cooling towers, centrifugal pumps, and like apparatus. We built for the Standard Oil Company a large cooling tower, which we purchased from the Alberger Pump & Condenser Company [192—56] and erected; that was erected at Richmond. The Alberger Company were quite set in their opinion regarding the fan type of tower, and after I had seen the superior performance of the open atmospheric type of tower I several times urged upon them the construction of such a tower; the open, atmospheric type of tower had been used for years by refrigerating plants.

(Testimony of Carl F. Braun.)

The COURT.—Before that the removal of heat was by compression and expansion of ammonia?

A. Yes, but in refrigerating plants very low temperatures are required, and the more heat that can be removed by the cooling tower the more economical the plant will operate, because the removal of heat by compression and expansion of ammonia is very expensive. It is much cheaper to remove it with the cooling tower. It is not only necessary to remove large quantities of heat, but to remove the heat at low temperatures.

In 1915 I received a letter from the Alberger Pump & Condenser Company enclosing a copy of an inquiry—

Mr. FOULDS.—I object to the statement of the contents of the communication.

The COURT.—What is the materiality of it, anyway?

Mr. TOWNSEND.—I was coming to that in a minute, how he came in contact with the Shell Company first.

The COURT.—I cannot see what difference that makes. It is admitted here that the Shell Company plant was built under a license or permission from the plaintiff.

Mr. TOWNSEND.—In the depositions taken in New York and the correspondence that has gone in there, they have created the picture that Mitchell-Tappen Company called Mr. Braun's attention to the Shell Company, and that he stole their cooling tower and their client. We will show Mr. Braun

had a tip in regard to this Shell matter from an independent concern, and [193—57] earlier.

The COURT.—What difference does it make how he got the business? He built that plant under the license, or upon the plans of the plaintiff; that is conceded, is it not?

Mr. TOWNSEND.—Absolutely, there is no question about it.

The COURT.—The question as to how he came to do business with that plant is not involved in the question as to whether there has been an infringement since. Does it bear upon the question of the prior art, or validity of his patent that is set up in your answer?

Mr. TOWNSEND.—It ties in with the history of the art, and Mr. Braun's familiarity with the cooling tower business.

The COURT.—Are you intending, Mr. Townsend, to assail the plaintiff's patent in the manner set up in your answer, that is, on the basis of the prior art, or anticipation?

Mr. TOWNSEND.—Yes, your Honor.

The COURT.—I think if that is material that is part of your case.

Mr. TOWNSEND.—I think it is.

The COURT.—I do not think it is proper at this point on cross-examination of plaintiff's witness.

Mr. TOWNSEND.—I will reserve that, if I may, for my own case.

The COURT.—Yes.

Mr. TOWNSEND.—Mr. Braun might complete

(Testimony of Carl F. Braun.)

that preliminary statement, and omit the correspondence he had with Alberger.

The COURT.—All right.

Mr. TOWNSEND.—And then I will check that up later.

The COURT.—I think he had best omit the correspondence at the present time. [194—58]

Mr. TOWNSEND.—Have you anything further to add about your connection with air-cooling problems up to the time of the building of the Shell plant in 1915?

A. I have been very familiar with the heat transfer problems, and I have made a specialty of heat transfer apparatus, for transferring heat from one fluid to another, and early in 1915 I presented a paper on the subject to the American Society of Mechanical Engineers, dealing particularly with heat transfer in a condenser.

Q. Have you ever employed a construction at any time anywhere except these first two towers that you purchased from the Mitchell-Tappen Co. and put up at Martinez for the Shell Company in 1915, wherein such a construction was used as shown either by the plaintiff's patent in suit, or illustrated in this model, Exhibit I? A. No.

Mr. FOULDS.—I object to the question in that form. Counsel has these bars in his hand; if he refers to the bars—

Mr. TOWNSEND.—I am referring to deck bars.

Mr. FOULDS.—The question as drawn was indefinite.

(Testimony of Carl F. Braun.)

Mr. TOWNSEND.—I accept the amendment.

The COURT.—It is pretty general, but you are practically asking him whether or not he has ever infringed, aren't you?

Mr. TOWNSEND.—I did not want to do that, because I have not any right to ask that question.

Q. Referring to plaintiff's patent in suit, Mr. Braun, or to the model, Exhibit I, have you ever employed slats with underneath grooves such as shown in Fig. 2 or Fig. 3, or any of the other figures of the patent, 1,010,020, which said grooves are shown, or any grooves at all, as may appear on the under side of the slats of the model Exhibit I?

A. No.

Q. What has been the construction of your slats, as far as [195—59] the underneath portion is concerned? A. Plane surface.

The COURT.—What purpose is served by these grooves on the under side?

Mr. FOULDS.—They separate the water running down. I will say when the water runs down, by capillary attraction it comes down in a solid stream, and the groove divides it into two streams.

Mr. TOWNSEND.—Q. Have you ever used side grooves such as appear in Figs. 2 and 3 of the patent in suit, or any grooves at all upon the sides of the slats? A. No.

Q. Have you ever used members which are termed splines 7 in the patent in suit in any of your constructions?

Mr. FOULDS.—I object to that, if your Honor

(Testimony of Carl F. Braun.)

please, on the ground that that is the question in issue here. If the question is directed to the exact spline shown there I have no objection to it.

The COURT.—I do not think that the statement that he is not using that particular member would amount to much one way or the other. In other words, it would be the mere opinion of the witness in any event as to whether the member that he used was the same or was substantially the same.

Mr. TOWNSEND.—I was not seeking to do that.

The COURT.—I will allow the question.

Mr. TOWNSEND.—I think we have shown what he is using, but whether or not at any time he has used anything else, that was the scope of my question. A. No, we have not used that.

Q. Have you ever used in your deck construction any other construction than such as you have described and illustrated by the models that you have referred to?

A. Only some decks that we nailed down without any other method of spacing or securing them.
[196—60]

The COURT.—You mean since the time that you added this addition at the Shell Company that your installation has been practically the same as shown by your large model?

A. Yes, with the exception of when we nailed the boards down.

Mr. TOWNSEND.—I think it has already been made clear what he did use in that addition.

The COURT.—Yes, I understand that.

(Testimony of Carl F. Braun.)

Mr. TOWNSEND.—Q. In adding this extra portion to the Shell construction at Martinez in 1916, did you employ or use the blue-prints or specifications which had been furnished you by the Cooling Tower Company, or the predecessor, the Mitchell-Tappen Co.?

A. No. I am under the impression that they had been returned to Mitchell-Tappen Co.

Q. What was the occasion of your building the towers for the Shell Company in 1920?

A. The deterioration of the original towers to a point where they were unsafe.

Q. So those were torn down and you put up your new towers? A. Yes.

The COURT.—We will take an adjournment now until to-morrow morning at ten o'clock.

(An adjournment was here taken until to-morrow, Wednesday, November 28, 1923, at ten o'clock A. M.) [197—61]

Wednesday, November 28, 1923.

C. F. BRAUN, cross-examination (Resumed).

Mr. TOWNSEND.—Q. I believe, Mr. Braun, when you were testifying yesterday in regard to wind pressure upon these towers you inadvertently referred to the pressure as 30 pounds per square inch. Was not that an oversight on your part?

A. Yes, if I said 30 pounds per square inch, it was an oversight; 30 pounds per square foot would be the proper figure for wind pressure.

Q. You desire that correction to be made?

A. Yes.

(Testimony of Carl F. Braun.)

Q. Some criticism has been indulged in by plaintiff's counsel of your use of cuts of the Shell 1915 towers in your advertising literature. Will you just tell what use you actually made of those cuts, and how you used them?

A. I remember that we published a bulletin, and that we used a photograph of the tower that we erected at Martinez; we took these photographs and made cuts of them and showed cuts on one of the pages of this bulletin. We were then operating as construction engineers; we advertised as such, and we did not advertise these towers as being patented by us, or as of our own design.

Q. They simply were illustrative of work that you had erected?

A. To show work that we had erected.

Mr. FOULDS.—Objected to as leading.

A. To show work that we had erected as the construction engineers.

Mr. TOWNSEND.—Q. Was that any different policy than you had followed in any other case?

A. We followed that policy altogether at that time.

Q. Is that a policy that is common with erecting engineers, [198—62] to point to work that they had done?

A. I think that it is a very common policy.

Q. You were interrogated by plaintiff's counsel in regard to the name plates with patent numbers thereon, and which appeared to be referred to in a letter from the Cooling Tower Company to

(Testimony of Carl F. Braun.)

you, or to your company, Plaintiff's Exhibit No. 7, the letter being dated July 19, 1915. Will you state whether or not, if you received those plates, they were likely put in place or otherwise?

A. In the ordinary course of business they would be put in place; I have no recollection of their not having been put in place.

Q. Was there any reason why you should not put them in place?

A. I have no reason whatever to believe they were not put in place.

A. You have referred to the redistributing decks used in your towers, and which I believe there is no controversy over, which are shown in what we call your first patent, being the Braun patent of 1920, Exhibit "B." Had you ever known or had any knowledge of the use of redistributing decks prior to your invention thereof?

A. I had never seen anything of that nature.

Q. I believe you have already stated the reason for developing the distributing decks.

A. In my describing of the tower I have stated that. The need of redistributing decks was first observed by me at Martinez, where the wind blows rather strongly through a draw in the hill; I noticed there that the wind was blowing successively, or progressively, from the windward to the lee side of the tower, and it was to overcome that difficulty that we developed the redistributing deck.

The COURT.—There is a brisk wind that prevails over there?

(Testimony of Carl F. Braun.)

A. There has been a brisk wind whenever I have been there; in the particular location of the towers, there is a gap in the [199—63] hill.

Q. I had occasion to study that in connection with a case that I had.

Mr. TOWNSEND.—These original towers, I understand, had no provision for that?

A. No, those towers had no redistributing deck.

Q. You may state whether or not the construction of floor joists, extensions, and connections to the louvers, by which you accomplished that result that you pointed out, and which construction is shown in Model D, forms the subject-matter of any patent of yours? A. Yes, our second patent.

Q. That is the second patent set up in the counter-claim.

Te COURT.—Which one is that.

Mr. TOWNSEND.—That is the second patent.

The COURT.—Which construction are you speaking of now?

A. The extension of the deck supporting members beyond the columns, so as to receive the louvers. My counsel referred to my first patent as 1920; I think that is in error. I think the first patent was 1919.

Mr. TOWNSEND.—I have forgotten the date. It is Exhibit "B."

Q. You were asked on direct examination if you had notified the Cooling Tower Company of the proposed extension to the Shell towers, and which

(Testimony of Carl F. Braun.)

extension you proceeded to put up in 1916. Was there any reason why you did not go to that trouble?

A. Yes, there were many reasons.

Q. Just state the circumstances.

A. I found that the Mitchell-Tappen Co. had very inadequate or practically no facilities for manufacturing cooling towers, and I found that the structural design was very poor; I found that the distinctive features of their tower were on very limited details; and I found [200—64] that a number of their details were highly impracticable.

Q. What were those details that you particularly refer to, that were impracticable?

A. The most important of these details, as far as impracticability was concerned, was a spline. In a tower of this character, there is a large quantity of deck lumber to be installed. These boards are usually 18 feet long; they are frequently warped out of shape when they are received on the site of erection, and to endeavor to place little splines between these at short intervals between two of these long boards and to keep them there until you can secure the board in place is almost an impossible task, and at best an extremely costly process.

Q. What experience did you have, if any, with the use of splines on that particular job? You might further explain just how these splines were placed, and why.

A. The deck boards are fastened by nails or lag screws at the support. The purpose of the

(Testimony of Carl F. Braun.)

spline is to space the deck boards, to space and maintain the space of the deck boards between the supports, at any point where spacing may be required. These are loose splines, and are supported by the grooves in the deck boards at any point without the need of a deck supporting member.

The COURT.—You mean that they will keep the space without any device on the deck-supporting member: Is that what you mean?

A. I mean, if I may show you this model, this is the deck member, which is secured permanently at the supporting point. Of course, this may be a continuous board, but it may come to another support under the board, and a nail might be driven through the board, as on this. These boards are fastened to the transverse members, and secured by nails or lag screws, [201—65] or similar devices.

Mr. TOWNSEND.—Q. Model I.

A. They are not secured to these transverse members by the splines; they are spaced and held in position at these supports by the fastenings, regardless of the splines. In between these deck supports, which are several feet apart, Mr. Coffey apparently thought it would be necessary to provide some spacing members in between the supports.

Q. The object being if these boards warped laterally they would hold them apart?

A. They would hold them apart. They are already spaced, these members being nailed down;

(Testimony of Carl F. Braun.)

they are shown in this model, which is marked Exhibit "H," which is exactly according to the patent drawings, and they are in actual construction nailed and secured at this support. The loose splines form spacing members in between these supports, and by reason of the grooves they cannot fall out, they are free to slide wherever it is necessary. The idea of the spacing block, of course, is very common in the construction of any floors, or banisters, or lattice-work, where, at a point of support one part is nailed down and then a spacing block put in, and another nailed down. But this is something different. It is a spacer in between the support, which is free to be placed at any point, and is, itself, supported by the two boards.

Mr. TOWNSEND.—I would call the Court's attention to the fact that the model Exhibit "H" is a counterpart of the drawing of the Coffey patent in suit, Fig. 6.

The COURT.—Yes, I observed that yesterday.

A. I wish particularly to show that the spacing of the boards at the point of support is not dependent upon the spline, but is dependent upon the fastening device, nail or lag screw, or [202—66] similar mechanical device.

Mr. TOWNSEND.—Q. In the plaintiff's construction, put up at the Shell Company, were the nails driven directly through the deck boards?

A. They were driven through the deck boards.

Q. Did you have any complaint from the erecting

(Testimony of Carl F. Braun.)

force up there at the time the Shell towers were going up, in regard to the splines you have spoken of?

Mr. FOULDS.—I object to that.

The COURT.—I will admit it. By “erecting force,” you mean the employees?

Mr. TOWNSEND.—Whoever did the job, and what knowledge Mr. Braun had of the thing.

A. We had complaints that the installation of these small splines was a very difficult and impractical task, and for the reason that I have explained previously in my testimony to-day, bearing in mind that these spaces are several feet, and the boards are possibly 12 or 18 feet long, these splines swell also, and it was very difficult to get them in and very difficult to keep them; in order that they will not fall out, they have to be made of fairly tight fit, and the result is the splines have to stand more than the board does; it is almost impossible to get them in the slots.

Q. How did the use of the splines in plaintiff's construction compare with the use of your bent metal strips appearing in your patent Exhibit “B,” as shown in the Model Exhibit “E”?

A. The brass strips used by us and shown in my first patent are used only at the transverse deck-supporting members, and are securely fastened to them. Their purpose is to secure the deck boards to the transverse deck-supporting members, and to allow of longitudinal expansion of the deck boards. [203—67]

(Testimony of Carl F. Braun.)

Q. The deck boards are not fastened to the supporting member at all except by the bent portion of these strips? A. Yes.

Q. That is, they are not actually fastened to the supporting member at all?

A. These strips could be considered as a series of staples; for instance, the same result would be obtained, approximately, if a staple were driven over the boards into the transverse supporting members.

The COURT.—Do they have any effect whatever upon the lateral swell of the deck boards between the supporting members?

A. They have no effect whatever. They are not used between the supporting members.

Q. You have no device, then, in your installation, corresponding to that wooden spline?

A. We have nothing whatever. We have on the deck securing members at the deck supports. The advantage of this strip, one of the advantages of a continuous strip of this fastening over a staple would be that where a staple such as that one, for some reason, became loosened, that particular deck board might be loosened by the wind and be blown out, but with a continuous strip, if one or more of these nails fastening the strip down became loosened or pulled out, the other nail in the strip will still hold that strip down, as a more or less effective member, and will prevent that board being blown away.

Mr. TOWNSEND.—I do not know whether the

(Testimony of Carl F. Braun.)

Court asked you if the deck boards in your construction were nailed down to the cross members.

The COURT.—I assumed apparently not, because otherwise they would have no effect on longitudinal expansion.

Mr. TOWNSEND.—Q. Now, at the time that you had that Shell job under erection in 1915, did you have any other troubles [204—68] with any material furnished by the Mitchell-Tappen Company, and, if so, what?

A. We had a great deal of trouble with the structural steel work; the structural steel work was composed of very light members; they had been shipped and rehandled a great many times, and had been seriously damaged, and, I believe, that they came from some structural company up in New York, and were shipped to New York by rail, or possibly river steamer, transferred to a steamer for San Francisco, and then transferred by steamer up to Martinez; the structural steel was in very bad condition when we received it. Many of the castings were broken, too.

Q. I do not know whether it was made clear in regard to the louver construction of the Shell towers in 1915 and the tower of 1916, and your present construction of louvers. Will you indicate that?

A. I would like to use the model for that.

Q. You may do that.

A. In the Shell tower the lumber was delivered in random lengths, it was not cut to length, and

(Testimony of Carl F. Braun.)

was laid on top of the 45 degree members for supporting these louvers, in a manner similar to the way a floor is laid—they were not put up in panels. The boards were joined at random points, and were nailed together. The louvers were held down against the 45° members by a loose-fitting bolt passing through a slotted hole; that is, the angular member for supporting the louver had slotted holes in it, and bolts were screwed through the louver to hold that down so it would not blow up. The distinctive differences between the louvers of the original Shell towers and the towers that we are now building is the fact that they were not in panel, and that they were not rigidly fastened to the angular members in such a manner as to give structural strength. [205—69]

Q. Can you state generally what the volume of business is that you have done in the cooling tower business and are doing to-day?

A. I have in mind that the figures for 1922 were somewhat in excess of \$500,000. The other years I do not have clearly in mind, but there were large sums in the year preceding that.

Q. Are there any other concerns building wooden towers?

A. The Cooling Tower Company of New York is building wooden towers.

Q. For what period of time, to your knowledge?

A. At least one year.

Q. Is there a distinction between an all-wood tower and a composite tower of metal and wood?

(Testimony of Carl F. Braun.)

A. I do not understand the question.

Q. Is there a difference in them, as a matter of erection, durability, etc.?

A. There are many advantages of an all-wood tower. One of the great advantages is durability of the tower. Towers which have steel in them will under many conditions corrode very rapidly. Cooling towers are subjected to very corrosive influences; the water passing over them is warm; frequently, it is highly impregnated with salt, due to concentration in the steam, and they are freely exposed to air, providing the oxidizing agent for oxidizing the steel parts. For that reason, a tower made of wood, particularly redwood, which has rot-resisting qualities, and with fastenings of some highly corrosive resistant substance, such as brass or copper, is far superior to a tower having steel members.

Q. What proportion of the framework of that original Martinez installation was of steel—what members were of steel?

A. The columns and the brackets supporting the louvers, the tie rods, and I believe some structural members joining the [206—70] columns; in fact, I believe that all members giving structural strength to the tower were of steel.

Q. Prior to the development of the wood tower construction by your company, to what extent were wood towers in vogue, if at all?

A. Wood towers have been in general use for a great many years; many of them were home-made

(Testimony of Carl F. Braun.) -

affairs, built by the customers, and sometimes were called bird-cage towers; some of them were made with lath; most of them were rather flimsy, and they were made almost entirely on the top floor as a house is built, not fabricated, and for that reason were usually costly.

Q. Can you state any outstanding distinction between these home-made bird-cage affairs you speak of and the towers you have developed and shown in your patent?

A. Our tower has greater structural strength and rigidity, which is a very important feature in the cooling tower, which, for proper performance must be exposed freely to the prevailing wind. Our tower also has a great advantage of being constructed in units. It is a manufactured tower fabricated at a factory, shipped in units, such for instance, as the louver panels, which are assembled and bolted together at the site of erection, at a minimum cost for field labor. The saving in field labor not only effects an economy, but it results in a better structure. A structure, the majority of the parts of which are built in a factory, which can be properly controlled, will be far better mechanically than a structure, a large portion of the work of which is done in the field which may be at remote places, such as oil fields and mines, or other locations where skilled labor is difficult to secure.

Mr. TOWNSEND.—That is all.

(Testimony of Carl F. Braun.)

Redirect Examination.

Mr. FOULDS.—Q. In some of your towers guy wires are used, [207—71] aren't they, to support the tower?

A. Not that I know of. They may be added by a customer.

Q. Don't you know that guy wires have been added to keep your tower rigid? A. No.

Q. Do you know of a tower at Ventura that is—you put up a tower at Ventura, didn't you?

A. Yes.

Q. Don't you recall that that tower is guyed?

A. No.

Q. When have you seen it last?

A. What tower do you mean at Ventura?

Q. The General Petroleum, I think.

A. I have never seen the General Petroleum tower at Ventura.

Q. How do you know, then?

A. I do not think we have a General Petroleum tower at Ventura.

Q. Do you recall that the Cooling Tower Company told you of an entirely wood tower in which even the pins were wood, constructed ten years ago?

A. No.

Q. Do you remember that they told you of the desirability of using all wood for some kinds of water, and all steel in other cases? A. No.

Q. Didn't you discuss that with them?

A. Not that I remember.

Q. You knew of the third Coffey patent entering

(Testimony of Carl F. Braun.)

into the Shell tower construction at that time, didn't you? A. No.

Q. Didn't you know the patent referring to the bracing? A. No.

Q. Did you ever see that patent?

A. I have seen it.

Q. Where did you first see it?

A. I don't remember.

Mr. TOWNSEND.—That patent isn't in suit, so I do not think any inquiry of that sort is pertinent, at all.

A. The third patent does not appear on the name plates, and was not known to us in any way.

Mr. FOULDS.—Q. Do you consider that the Cooling Tower [208—72] Company's structure does not give any rigidity or support to the tower?

A. No.

Q. Have you seen this patent No. 1,158,107?

A. I believe that I have examined this patent.

Q. And that is the Cooling Tower Company's construction of the side bracing which you have attempted to show in this model G, is it not?

The COURT.—Which is the part you call the side bracing?

Mr. FOULDS.—I refer to the bracing of the tower.

A. This model was to show the construction of the tower at Martinez.

Q. Isn't that what was shown in the prints which were sent to you in 1915? A. What?

Q. That bracing shown in that patent.

(Testimony of Carl F. Braun.)

A. This bracing does not agree with the prints.

Q. In what respect? Refer to the prints which were shown you yesterday, and then refer to that patent, and tell us in what respect it does not agree?

Mr. TOWNSEND.—If your Honor please, I do not see where this *material* is material.

The COURT.—I should think if these drawings were made and the installation at Martinez was constructed in accordance with any existing patent that belonged to the plaintiff it would be material.

Mr. TOWNSEND.—There is no charge of infringement of this patent.

The COURT.—In either event, if the matter, as shown by the drawings and included in that installation were subsequently patented or patented before that it would be material here to show the invalidity of the defendant's patent. [209—73]

Mr. TOWNSEND.—If it has that bearing, but it seems so far-fetched and against the actual fact—

The COURT.—Whether it is against the actual fact is another proposition, but if a man holding a patent for a complete installation supplies drawings, including details which are then subject to the patent, and which become the subject of a subsequent patent, isn't that material as bearing upon the question as to whether or not the man who constructed or put in an installation on those drawings has himself a valid patent?

Mr. TOWNSEND.—I am afraid your Honor has confused two thoughts, there. Of course, there is

(Testimony of Carl F. Braun.)

no controversy over the right of Mr. Braun to have erected the Shell towers, he having bought these towers from the plaintiff, and everything having been settled at that time—in regard to the Shell towers there is no question of infringement of any of these patents.

The COURT.—No.

Mr. TOWNSEND.—Now, on the question of anticipation, to show the state of the art, the plaintiff, or either party, is of course entitled to offer that patent, whether it is his own or somebody else's, to show the state of the art, with a view to limiting the features of the patent in controversy. That right of Mr. Fould's exists, independent of any patents under which that tower was erected, or any patent owned by his company.

The COURT.—That is undoubtedly true, but isn't he entitled to question that by showing that the particular details involved in that construction were made the subject of a patent?

Mr. TOWNSEND.—It would be applicable if this patent shows [210—74] a construction of the Braun tower as patented. If it had that bearing, I withdraw my objection.

The COURT.—I apprehend that is what Mr. Foulds is driving at.

Mr. FOULDS.—The witness has devoted a great deal of time to explaining his bracing, and the merits of his bracing. As a matter of fact this patent shows that he appropriated the very idea that we had had patented, the very idea that

(Testimony of Carl F. Braun.)

is in that tower; that all of that talk of his bracing is ours.

The COURT.—To my mind it is clearly material.

Mr. TOWNSEND.—All right. I had not considered for a moment that they would set up a structure like this as an anticipation of the Braun patent, but if that is part of the defense of that, well and good.

Mr. FOULDS.—Read the question, Mr. Reporter.

(Last question repeated by the reporter.)

A. The drawings do not show the structure, and, therefore, are not comparable with the patent.

Q. The drawings show the structure diagrammatically, do they not?

A. Not these drawings; possibly there are some other drawings. Your question is in what way they did not agree?

Q. Whether the structure shown in this blueprint which you are looking at is not the structure shown in the patent which I have shown you, 1,158,107.

A. As near as I can tell from a cursory examination, the structure is about the same.

Q. Do you mean to say now that the structure erected at the Shell plant did not get any rigidity or structural strength from the louver-supporting members and louvers?

A. The louver-supporting members and louvers did not add to the ability of the structure to resist wind pressure. [211—75]

Q. Don't you know that the object of the in-

(Testimony of Carl F. Braun.)

ventor of this Coffey patent shown you, as stated by him, was to attain that very rigidity by his structure at the Shell plant?

A. I do not know that.

Mr. TOWNSEND.—That is objected to as argumentative.

Mr. FOULDS.—Don't you know that?

A. I don't know that.

Q. Have you read the patent?

A. Not for a long time.

Q. When did you read it?

A. Possibly a year ago.

Q. Not before that?

A. I don't remember when I read it.

Q. When you saw the patent numbers on the plaintiff's name-plate didn't you get copies of those patents and examine them?

A. This patent number was not on the plaintiff's name-plate.

Q. Are you sure of that? A. Yes.

The COURT.—This application was filed June, 1914; the date of the patent is October 26, 1915. When was the Martinez tower erected?

Mr. TOWNSEND.—The letter was in July, 1915, several months before that patent issued. I think that answers counsel's question.

The COURT.—It was pending at the time.

Mr. FOULDS.—I offer in evidence letters patent to Barton H. Coffey, No. 1,158,107, dated October 26, 1915, issued to the Cooling Tower Company, as assignee of Barton H. Coffey.

(Testimony of Carl F. Braun.)

(The patent was marked "Plaintiff's Exhibit 50.")

I also offer in evidence the five sheets of blue-prints for the Shell tower erection, 105, 59, 109, 108, and 115, being the blue-prints referred to by the witness, and which were marked by him yesterday.

(The blue-prints were marked Plaintiff's Exhibit 51.)

Mr. TOWNSEND.—Unless Mr. Braun has some reason to question [212—76] the correctness of these drawings, I have no objection to them.

The WITNESS.—I have no reason to.

Mr. TOWNSEND.—I will take counsel's word that they are O. K.

Mr. FOULDS.—Q. You spoke of returning these drawings to the Cooling Tower Company, and you said you thought you had no copies when you made the extension.

A. I believe they were.

Q. Do you remember writing to the Cooling Tower Company after you had completed the original tower, and asking for additional copies of the drawings. I call your attention to the letter of August 12, 1915, addressed to the Cooling Tower Company, asking for three complete sets of the detail plans, and your letter of November 26, 1915, asking for extra prints.

A. The letter of August 12 I can identify.

Q. Does that refresh your recollection?

A. I can identify that letter.

Q. And you did get additional prints, didn't you?

(Testimony of Carl F. Braun.)

A. I don't remember.

Q. You don't remember whether you received them, or not? A. No.

Mr. FOULDS.—I offer these letters in evidence as Plaintiff's Exhibits 52 and 53.

Mr. TOWNSEND.—At the request of plaintiff's counsel, I hand him a blue-print, Defendant's Exhibit "A" for identification.

Mr. FOULDS.—Q. Do you identify both of these letters? A. Only one of them.

Q. Don't you recognize both of these letters?

A. Only one was written by me; I could not identify the other.

Q. Do you recognize the signature on both letters?

A. No, I do not recognize the signature on this other letter. [213—77]

Q. Do you know who Mr. C. H. Shattuck is?

A. Yes, he was the engineer of our company at that time.

Q. Is that his signature?

A. I don't know; it does not look like his present signature. Mr. Shattuck is here and you can ask him.

The COURT.—Ask him now.

Mr. SHATTUCK.—That is not my signature.

Mr. TOWNSEND.—Mr. Shattuck says that undoubtedly he dictated that letter but did not sign it. We will not question the fact that it emanated from the defendant company. That letter explains why these blue-prints were requested; apparently,

(Testimony of Carl F. Braun.)

the Shell Company wanted them to complete their files.

Mr. FOULDS.—That is what you say in the letter, Mr. Braun.

A. That is said in the letter, yes.

Q. As a matter of fact, didn't you get up this drawing, Defendant's Exhibit "A" for identification, from the plaintiff's prints 105?

A. We made use of plaintiff's print 105.

Q. In getting up what?

A. In getting up the drawings; it was necessary to make these towers architecturally similar.

Q. You decided, if possible, to get the benefit of that installation, and evade plaintiff's patent, didn't you?

Mr. TOWNSEND.—I object to that as a reflection highly unwarranted.

The COURT.—You are not asking for any fact. You are asking the witness to convict himself. That is too much to expect of anybody. I will sustain the objection.

Mr. FOULDS.—Q. You adopted these spacing fingers as a means of spacing your slats and holding them loosely so that they could expand longitudinally, didn't you? [214—78]

Mr. TOWNSEND.—To make the record clear as to counsel's definition or understanding of spacing fingers, he is referring to this angle iron—

The COURT.—I assume that is the only thing there that you could possibly call the spacing finger on that second installation at Martinez.

(Testimony of Carl F. Braun.)

A. I use an angle iron to secure the deck to the transverse deck-supporting members, and to form a template to properly secure the deck boards in position.

Q. What do you understand a template to be?

A. A template is a device definitely fixing one or more dimensions.

Q. Do you call this spacing finger in your so-called angle iron shown in Exhibit "K" a template?

A. I call the entire angle iron a template.

Q. Those spacing fingers of the template might then be called what?

A. Spacing blocks, or fingers.

Q. Or splines? A. No.

Q. You would not call them splines?

A. I would not call them splines.

Q. What do you think would be the distinction that would take away that definition?

Mr. TOWNSEND.—I suggest that the file-wrapper is a pretty good dictionary to turn to as to what a spline means.

Mr. FOULDS.—I think the witness' own use of the word "spline" shows what it means in his patent.

A. These are projections from solid members.

Q. Can a spline be a projection from a solid member?

A. I think it would be stretching the definition of a spline.

Q. Why?

Mr. TOWNSEND.—I believe that the examina-

(Testimony of Carl F. Braun.)

tion is growing speculative now; it is not calling for a contrast of two [215—79] actual structures, it is calling for a hypothetical answer.

The COURT.—No, I do not think it is. The witness made a clear distinction between the movable member which he called a spline, and the fixed member, which he said was not a spline. It is proper to ask why isn't it. I will overrule the objection. Why do you say that is not a spline?

A. Because a spline is essentially a loose member. These fingers are projections from a continuous solid member.

Mr. FOULDS.—Q. That, then, is your distinction, that your plate is fixed?

A. You refer to the entire member?

Q. Which you call the template.

A. You were speaking of the finger, weren't you?

Mr. FOULDS.—Read the question.

(Last question repeated by the reporter.)

A. (Continuing.) That is the distinction.

Q. I understand you to tell us that your finger spacers cannot be called splines because they were secured or fixed in position: Is that correct?

A. The distinction between our member and splines is that ours is deck-securing members securing the deck to the transverse deck-supporting member; and the splines do not secure the deck to any deck member. That is the difference between the splines and the member that we have used.

Q. Is that the general definition of a spline, or

(Testimony of Carl F. Braun.)

do you refer to a particular spline which you have in mind?

A. I am explaining the difference between our angle construction and the spline used in the Martinez tower.

Q. So there are different kinds of splines, are there?

A. Yes, there are different kinds of splines.

Q. You use one kind of spline, as described by your patent before the Court, don't you?

A. Yes. [216—80]

Q. And that was a correct use of the word "spline"?

The COURT.—If you stuck a lag screw in there and fastened these moveable members, would it then be proper to call it a spline? A. I believe so.

Q. Then the distinction in your mind between a spline and the angle iron which you used on that second installation, or these brass strips you use on the present installation, is that this spacing device was placed between the supporting members, whereas on your own installation the brass strips serving the purpose of spacing at the supporting members, were attached to the supporting member?

A. Yes.

Mr. FOULDS.—Q. Is this Exhibit "H" to which the Court has just referred, a duplicate of anything that you have seen? A. No.

Q. It is merely a theoretical rendition in physical form of what you think Fig. 6 of the Coffey patent in suit shows?

(Testimony of Carl F. Braun.)

A. It is made to the drawing of the Coffey patent.

The COURT.—Was this Exhibit “H” an installation that you used in the first Martinez plant?

A. Exhibit “H” is drawn from the patent.

Q. I understand. Did you use these splines in the Martinez plant?

A. We used splines in the first Martinez tower.

Q. The same as these?

A. Approximately the same.

Mr. TOWNSEND.—If your Honor would turn to the patent, you will find that there is a structure called for in the patent of longitudinal spline members and end spline member, as well as intermediate spline members. It is a complex affair.

A. In the Coffey patent, this member is referred to as a spline, and this angle iron is referred to as a spline. I really think that the word “spline” has been used rather [217—81] loosely in a number of cases.

Mr. FOULDS.—“Spline,” then, has a general but loose application to spacing members.

Mr. TOWNSEND.—The file-wrapped has so definitely fixed that fact, that it is the best evidence of the meaning of the word “spline” as used in the patent. They attempt to get claims which would cover any sort of spacing member, a wooden block put in there, and they were refused claims, and they were finally compelled to take the limited claims that they have got in their patent on loose spline work. Your Honor has not had an opportunity to examine the history of the patent, in the

(Testimony of Carl F. Braun.)

file-wrapper. I was going to ask counsel if he was contending for a construction of his patent which would cover any sort of a block of wood in there.

The COURT.—At any rate the evidence shows now that defendant is not using any spacing member whatsoever between the supporting members.

Mr. TOWNSEND.—No, and as far as we know defendant has never used any except under a proper agreement with the plaintiff in the first two Shell towers. The word “spline” has a very specific meaning in this patent, and I think it is too bad to waste so much time in getting away from that, because it is my purpose to introduce the file-wrapper, and introduce the references that were cited, so you will see just what the metes and bounds of those claims are.

The COURT.—I infer that the word seems to include almost any sort of a spacing block or a member of any kind. Is that a matter of general engineering practice, that the word is quite generally used to indicate anything that holds apart other members and serves no other purpose? [218—82]

The WITNESS.—I consider it to mean specifically a member working in grooves between two other members, but it has been used more generally in both these patents. In the Coffey patent this supporting member at the end is called a spline, and in my first patent the board nailed down on top

(Testimony of Carl F. Braum.)

of the deck is called a spline. So possibly there is a rather loose use of the word "spline."

Mr. FOULDS.—Q. What were the first towers that you erected after the Shell refinery towers at Martinez?

A. I would have to look up the records to find out.

Q. When you first started to do that, you placed your louver boards vertically, didn't you, up and down?

A. We built a tower with vertical louver boards.

Q. That is the tower shown in your catalog?

A. Whether that is the first one, or not, I am not certain.

Q. Examine Bulletin No. 101, Figure 49.

A. Yes, we built such a tower.

Q. Where and when was that built?

A. That tower, I believe, was built at Coalinga, at or near Coalinga.

Q. About when?

A. I cannot say without looking up the records.

Q. Can you tell approximately?

A. I would say a year more or less after the Martinez towers. It is very difficult for me to tell without looking up the records.

Q. When did you abandon that method of construction of louvers?

A. I believe we built one tower only that way.

Q. Did you do that in order to get away from the plaintiff's bracing structure? A. No.

Q. You originally used long, random-length mem-

(Testimony of Carl F. Braun.)

bers in your towers, didn't you, a sample of that being shown on Fig. 40 of your Bulletin No. 101?

A. Figure 40 of our bulletin was a later installation. [219—83]

Q. Those are boards of random lengths, aren't they?

A. These were boards of random lengths.

Q. They are not of panel construction, such as you have shown here?

A. They are not panel construction.

Q. How long did you continue to use that structure?

A. I cannot answer that accurately; I believe that we used that structure during 1918.

Q. Was that abandoned?

A. That also was abandoned.

Q. When did you adopt the triangular angle iron to hold the louvers?

A. I cannot state that accurately. We were using them in the early part of 1918, and I believe slightly earlier.

Q. Did you abandon them? A. The angles?

Q. Yes. A. Yes.

Mr. TOWNSEND.—Q. You refer to the angle iron supports for louvers that appear in the first Braun patent Exhibit "B"? A. I presume so.

Mr. FOULDS.—I refer to the angle iron shown in 1,334,515.

Mr. TOWNSEND.—Q. What element?

Mr. FOULDS.—Element 19.

A. Might I look at that?

(Testimony of Carl F. Braun.)

Q. During what period did you nail down your slats or drip bars?

A. I don't think that we ever have nailed down the drip bars.

Q. Do you make a distinction between distributing bars and drip bars?

A. If you will show me what you mean I will try and answer.

Q. I refer to the element that you have marked "F" in this Exhibit "E." You testified yesterday, as I understood it, that at one time you nailed down these directly without using your spacers.

A. We have nailed decks down at different times. I remember some towers that we nailed the decks down on approximately [220—84] a year and a half ago.

Q. Did you find that unsatisfactory?

A. We found it unsatisfactory.

Q. What was your object in adopting these metal strips that you have called "H"?

A. To secure the deck boards to the transverse members.

Q. And also to space them?

A. In such a manner that the failure of one fastening would not cause a falling apart of any of the structure, and to permit of individual longitudinal expansion of the deck boards.

Q. I notice in this Exhibit "E," and also in your actual construction, that some of these spacing straps are much wider than others, and you use a wide, heavy spacing strap at the transverse joist,

(Testimony of Carl F. Braun.)

and a narrow, light spacing strap between the wide spacing straps.

A. No. We use the wide spacing strap at the point where the boards will join. The supports for the deck members are more closely spaced than the length of the board. If a board is to pass continuously by a support a narrow member is sufficient. If two boards are to butt each other then a wide member is necessary, as a contraction of the member might cause it to work from underneath a narrow member and work out.

Q. You used a wide member and then a narrow member, and then a wide member again, running throughout the length of the tower?

A. We might use all wide members, if built from short decking; that would be dependent solely upon the length of the deck lumber.

Q. At the Martinez tower, the wide straps are usually from the supporting posts at the transverse joints and the narrow straps between, aren't they?

A. I don't remember that; it might be. [221—85]

Q. You find very often these narrow spacing straps become loose between the boards, nails come out, or are not put in, don't you?

A. They might come loose. I have not found that it occurred frequently.

Q. You have seen that in some places, haven't you? A. Have seen nails out?

Q. Have seen straps loose, the nails either out or not put in.

(Testimony of Carl F. Braun.)

A. I have seen some of the nails out, yes.

Q. In that case, the spacing strap run across a number of boards without any means for supporting the slats except the crimp in your spacing strap: Isn't that so?

A. It would be if the nails were out, although if the nails were out it is probable that the ribbon would spring so far from the board that it would entirely fail of its function.

Q. Why would the ribbon spring up?

A. Because it is very light.

Q. What would be the force that would cause it to spring up?

A. The strain set up in the ribbon by the punching of the projection.

Q. Is the tendency to bow up?

A. The tendency would be to bow up.

Q. You then think that the deck would contract laterally, instead of expanding?

A. I don't think that the deck would do either.

Q. If the deck remained the same width these straps would not spring up, would they?

A. Yes.

Q. The straps running from side to side of the deck would spring up even though the deck remained the same width? A. Yes, it might.

Q. Do you know that they do that, or is that theoretical?

A. No, I have seen these brass members bow; after they have [222—86] been run through that punch they will not lay flat unless nailed down.

(Testimony of Carl F. Braun.)

Q. Do you know how far they will bow?

A. Not offhand, no.

The COURT.—Is that about life size of these straps?

A. Yes, that is to scale. I believe this was taken actually from our stock in the factory. It looks to me like the stock material. I think Mr. Shattuck will verify that.

Mr. TOWNSEND.—I have seen the tower at the Shell plant, and it looks very much like that. I will ask Mr. Braun to state what the usual length of the brass straps are.

A. The usual length of the brass straps is the width of the tower; the tower ranges in width from 6 to 12 feet.

The COURT.—They are continuous, clear across?

A. They are continuous, clear across.

Mr. FOULDS.—Q. In this Shell extension at Martinez, that you made in 1916, is there a deck consisting of drip bars?

A. There is a deck consisting of longitudinal boards.

Q. There are separate or individual fastenings at each end, with a space in between the bars?

A. This is the addition, now, that you are speaking of?

Q. Yes. There are separate or individual fastenings at each end, with space in between the bars?

A. They are not actually fastened at any place.

Q. They are secured at each end, aren't they?

A. They are secured by these straps at each end.

(Testimony of Carl F. Braun.)

The COURT.—You are talking now of the addition to the 1915 installation?

Mr. FOULDS.—Yes.

The COURT.—Those were not fastened with straps?

A. They were fastened by the angle irons. [223—87]

Q. And the adjacent bars were held in spaced relation at more than one point by a member or device which permits individual expansion of the slats? A. Yes.

Q. There also was a deck consisting of drip bars individually fastened at each end to a horizontal deck frame?

Mr. TOWNSEND.—Might I ask counsel if he is reading from the claims?

Mr. FOULDS.—I am reading from claims 1 and 2 of our patent—from the patent in suit.

Mr. TOWNSEND.—You are paraphrasing it.

Mr. FOULDS.—It is true I am not using the exact language.

A. Will you read the last question?

Q. A deck consisting of drip bars, individually fastened at each end to a horizontal deck frame.

A. No, there are not individual fastenings at each end.

Q. I am talking now of your addition to the Shell plant. A. So am I.

Q. There were not individual fastenings at each end?

A. There are not individual fastenings.

(Testimony of Carl F. Braun.)

The COURT.—Why not?

A. I mean that it is not fastened to that member. They are free to expand longitudinally. It is not fastened with a nail. That is the distinction I am trying to make. It is held in two directions.

Q. It is held in two directions? A. Yes.

Q. That is to say, it is fastened, so far as any lateral expansion goes, and it is held down, it is held fastened, so far as any vertical expansion goes?

A. Yes.

Q. But not as far as longitudinal expansion goes? A. This is not securely fastened.

Q. It is securely fastened, except that it is subject to longitudinal expansion?

A. Yes. [224—88]

Mr. TOWNSEND.—Might I point out to the Court, if your Honor please, that the line of examination that counsel is attempting to follow in reading from the claims is in effect asking this witness to construe the claims, which is the province of the Court. He is asking for a legal construction.

Mr. FOULDS.—I think not. I am asking the witness what he had there.

The COURT.—I think that is so, Mr. Foulds. He has told in the most minute detail what he did have there.

Mr. FOULDS.—As I told Mr. Townsend yesterday, I examined that Shell tower last Saturday, and found through the length of the slats that these straps were loose here and there; the straps were loose, separating members. I do not want to take

(Testimony of Carl F. Braun.)

the stand, but I think it is understood that I would so testify.

Mr. TOWNSEND.—I think it is rather unusual of counsel to put of record any testimony he might want to deduce on behalf of his client.

The COURT.—But, Mr. Townsend, isn't it perfectly obvious that these straps might work loose? Mr. Braun said so. Now, then, Mr. Foulds said that he saw instances where they actually were loose. His contention is that they constitute a loose member or spline. That is the point.

Mr. TOWNSEND.—Yes.

The COURT.—That is a matter of argument. You have no objection to admitting that he saw some of these straps at various points had worked loose through the coming out of a nail?

The WITNESS.—That might be true. I think that is one advantage of the straps—that, if that nail comes out—

The COURT.—That is a question of argument.
[225—89]

Mr. TOWNSEND.—Very well, I will accept the suggestion.

The WITNESS.—I would like to testify that these are made with a punch which makes this impression and punches a hole at the same time.

The COURT.—The strap, then, is not pressed sufficient to reach the transverse member. There is a space between the strap and the supporting member. Is that the way it is in practice?

A. I think it is made just as it is in practice. I

(Testimony of Carl F. Braun.)

do not think it would affect the operation of the device if it went down or up.

Mr. FOULDS.—That is all. Plaintiff rests.

Mr. TOWNSEND.—I have certain formal papers to offer on behalf of the defendant.

Defendant offers Braun patent 1,442,784 of date January 16, 1923, for water-cooling tower, this being the so-called second Braun patent and set up in the counterclaim. We stand on claims 1, 2, and 10 as having been infringed by the plaintiff.

(The document was marked Defendant's Exhibit "M.")

I next offered a certified copy of the File Wrapper and contents of this Braun patent, 1,442,784, as Defendant's Exhibit "L." And in connection with that patent and the file wrapper and contents, I offer the references which were cited by the Patent Office during the pendency of the Braun case: Patent to Burhorn, 1,182,635, May 9, 1916, as Defendant's Exhibit "O."

Patent to Burhorn, 1,234,444, July 24, 1917, as Defendant's Exhibit "P."

Patent to B. F. Hart, Jr., No. 902,875, November 3, 1908, as Defendant's Exhibit "Q." [226—90]

Patent to Burhorn, No. 973,163, October 18, 1910, as Defendant's Exhibit "R."

Patent to B. F. Hart, Jr., No. 1,228,207, May 29, 1917, as Defendant's Exhibit "S."

Patent to Schmidt, No. 693,625, February 18, 1902, as Defendant's Exhibit "T."

Your Honor understands that these patents con-

stitute the art cited against this Braun patent, and they were carefully considered by the experts in the Patent Office, and the Braun construction found to be patentable over that art; but these patents, of course, would also be available for consideration of the art with respect to the patents in controversy, both plaintiff's and defendant's.

I also offer in evidence a certified copy of the file-wrapper and contents of the first Braun patent, which is Exhibit "B" of 1920—file-wrapper and contents of 1,334,515, March 23, 1920, as Defendant's Exhibit "U." There are also several patents cited in connection with the prosecution of this first Braun patent—there were several patents referred to and considered by the Patent Office.

The COURT.—We will take a recess now until two o'clock.

(A recess was here taken until two o'clock P. M.)
[227—91]

AFTERNOON SESSION.

Mr. TOWNSEND.—I will proceed to offer the patents in evidence which were cited in connection with the first Braun patent, of 1920, Exhibit "B," the file-wrapper of which was offered as Exhibit "U."

The patent to Stocker, 700,990, May 27, 1902, as Defendant's Exhibit "V."

Patent to Wheeler and Pratt, No. 821,561, May 22, 1906, as Defendant's Exhibit "W."

The patent to Hart, 1,228,207 is already offered. I won't duplicate that; likewise as to the patent to

Schmidt, No. 693,625, already in evidence; likewise the patent of Hart, 902,875.

I next offer patent to Morrison, No. 965,116, July 19, 1910, as Defendant's Exhibit "X."

Patent to Coffee in suit, 1,010,020, is of course in evidence. I cannot offer that.

I offer the patent to Fischer et al., No. 649,573, May 15, 1900, as Defendant's Exhibit "Y."

I next offer the Burhorn patent 1,040,875, October 8, 1912, as Defendant's Exhibit "Z."

Now, the three foreign patents, one French and two British, I will formally offer for the purpose of the record, and supply them later if I find them in my files; I think they are here. I offer the French patent, No. 359,426, as Defendant's Exhibit "AA." When I say "French," it is a patent issued by the Republic of France.

I next offer the British patent to Hebbs, No. 25,449, of November 12, 1905, as Defendant's Exhibit "BB."

A British patent to Pomall, No. 21,711, September 23, 1909, as Defendant's Exhibit "CC." [228—92]

I next offer a certified copy of the Barton H. Coffey patent, file-wrapper and contents, being the patent in suit to plaintiff, No. 1,010,020, November 28, 1911, as Defendant's Exhibit "DD."

I also offer the citations appearing in that patent application file, being the following five patents: Cooper, 140,680, July 8, 1873, as Defendant's Exhibit "EE."

Mills, No. 463,702, November 24, 1891, as Defendant's Exhibit "FF."

Southwick, No. 303,334, August 12, 1884, as Defendant's Exhibit "GG."

Andrews, No. 544,202, August 6, 1894, as Defendant's Exhibit "HH."

Fisher et al., 49,753—

Mr. FOULDS.—You have already offered that as Exhibit "Y."

Mr. TOWNSEND.—That is the same as Exhibit "Y." It need not be duplicated.

I next offer a series of 14 patents illustrative of the state of the art applicable to the Coffey patent in suit. It is possible one of these may be duplicates, but I have them all bound in a volume, and I am offering the whole volume of these 14 patents as one exhibit, Defendant's Exhibit "II."

Mr. FOULDS.—Are these referred to in your answer?

Mr. TOWNSEND.—I will just read them off. The Windhausen patent No. 111,292, of January 24, 1871, as Defendant's Exhibit "II-1." These are to be considered as illustrative of the state of the art, which is permissive without notice. They are not set up for anticipation, as we understand it. I call particular attention to Figs. 9 and 10 of said patent.

Next, as Exhibit "II-2," Hanisch No. 477,755, of June 28, 1892, and call attention to Fig. 5 as another arrangement of [229—93] baffles and deck boards for affecting cooling.

Next the Stocker patent No. 700,990, May 27, 1902,

as Defendant's Exhibit "II-3"; this patent being interesting as showing a trough distribution for the water and the trough dammed at the end to cause the overflow in a manner very common in the art.

Patent to Wheeler et al., 707,042, of August 12, 1902, as Exhibit "II-4." The Court will note the distributing decks shown in Fig. 2, and the patent being interesting as relating to cooling towers, as the inventor says, especially to water-cooling towers used in connection with steam plants operating with a condensing system, and more particularly to the open or nonenclosed type of this class of tower. The tower also shows the use of screens to prevent excessive flowing away of the water.

Next, as Exhibit "II-5," the patent to Halsall, No. 683,933, October 8, 1901, another open type of tower with decks at intervals, the patentee saying on page 1, lines 70 to 79:

"Disposed within the tower at suitable distances apart are a series of gratings 15, the meshes of which are of suitable size to break up and atomize the drops of water showered thereon and which descend in opposition to the ascending current of cold air in the tower."

I should say this is a forced draft tower, not an open-type tower.

To illustrate the principles involved, next is the patent to Ostendorff, 661,192, November 6, 1900, as Defendant's Exhibit "II-6," which is an open type cooling tower, the patentee saying:

“My invention is directed particularly to improvements in means for cooling water by natural aeration and evaporation caused by allowing the water to fall in fine drops or streams through the air.”

Mr. FOULDS.—It used a pan; it does not use slats at all. [230—94]

Mr. TOWNSEND.—It used a series of pans.

Next is Exhibit “II-7,” another patent to Ostendorff, No. 697,160, of April 8, 1902, and refers to this as a water-cooling tower and states the object very much as before.

Next is Exhibit “II-8,” Ostendorff patent 836,702, of November 27, 1906, water-cooling apparatus, and he makes reference to his former patent 661,192, he saying: “My improvements being directed particularly to certain changes in the distributing pans employed in connection with the tower of the water-cooler.”

Next, as “II-9,” Burhorn patent 772,780, of October 18, 1904, where the drip bars are secured at the frame ends.

Mr. FOULDS.—There are no drip bars in that. I took out that patent. There are no drip bars there. That is a pan.

Mr. TOWNSEND.—That is true, although I see in Fig. 3 the longitudinal groove on the under side.

Mr. FOULDS.—There were no slats in that.

Mr. TOWNSEND.—That is quite true, but I don't think that is a distinction of great importance, is it, Mr. Foulds?

Mr. FOULDS.—It seems to me that a pan covered the entire interior of the deck, perforated pan, is quite different from the structure we have here.

Mr. TOWNSEND.—The Court understands this as showing the state of the art, various exemplifications by which certain ideas are embodied to carry it out.

The next is “II-10,” Burhorn patent 961,100, dated June 14, 1910, cooling tower. I suppose that might be considered an open type.

Mr. FOULDS.—These were shallow pans.

Mr. TOWNSEND.—Next as Defendants Exhibit “II-11,” Burhorn No. 1,014,371 of January 9, 1912, applied for on November 26, 1910, illustrating another idea of Mr. Burhorn. Burhorn apparently [231—95] was quite a prolific inventor, and Mr. Coffey, the patentee and the expert for plaintiff, makes frequent reference in the depositions to his indebtedness to Burhorn. I see I have already given the patent to Fisher, 649,573, so I will pass over that, but in that patent to Fisher I want to call particular attention to Fig. 6, this being dated May 15, 1900, showing that the water dropped from one slatted deck to another, and the slats being staggered, and also interesting as Fisher shows a spline for holding certain members, these splines being more particularly shown in Fig. 4.

The next, Exhibit “II-12,” is a patent to Burhorn, No. 1,092,334, dated April 7, 1914, and call particular attention to Fig. 5, slats, quite similar to the slats of the Coffey patent in suit. It shows also splines 29. Fig. 5 illustrates the structure and

what is interesting is to note the following from the specification of Burhorn on page 2:

“And the slats being separated by splines 29 set between the slats 27, 27. In this form of deck I preferably provide a longitudinal channel 30 in the under side of the slats 27, whereby the water will be caused to fall from the sides of the slats instead of seeking the center, thus accomplishing the desired division of the water into fine spray.”

So that there will be no misunderstanding, your Honor will recall this, I only put this in for this purpose—it cannot be used for anticipation; it is used for the purpose, rather, of explaining the use of splines in this art. The patent was applied for shortly after the plaintiff’s patent was issued. For some unaccountable reason which is not apparent from the face of this patent—I am curious to know whether there was any interference—maybe Mr. Foulds can enlighten us—between Coffey and Burhorn. [232—96]

Mr. FOULDS.—There was none.

Mr. TOWNSEND.—It was applied for a few months after Coffey, but it shows almost the identical construction of Coffey, with the splines and the housing, and it is interesting as showing what splines meant to two men who were very closely associated about that time. I have no inference to draw or to offer, and I merely put this in on account of the peculiar verbiage that we find there.

Next, as “II-13,” the Alberger patent No. 1,098,004, dated May 26, 1914, filed October 1, 1909. This

is a closed type of tower, and I understand is the type of tower that Alberger Company was making, and which Mr. Braun handled prior to his purchasing these two towers from the Cooling Tower Company to put up at the Shell Refinery. It is interesting as connecting up a practical machine that was well known on the market with a patent on the same.

We have made reference to a cut which I believe is called Cut 14 in the catalog of plaintiff. For the convenience of the Court, I have had a photostatic enlargement made of that cut, and I will offer that as Defendant's Exhibit "JJ."

Mr. TOWNSEND.—Mr. Foulds, will you admit that is a copy of a letter that was sent to the Standard Oil Company by the plaintiff?

Mr. FOULDS.—I would be willing to admit it but I have not the original letter here.

Mr. TOWNSEND.—The answer to the counterclaim admits that parts of the letter were correct and I had not noticed the whole letter was copied so the admission covers the whole letter.

The COURT.—Referring to the letter set out in the answer?

Mr. TOWNSEND.—It is set out in the answer on pages 14 and [233—97] 15, from the Cooling Tower Company to the Standard Oil Company, and in their answer to the counterclaim plaintiff admits that on or about July 11, 1918, it wrote a letter to the Standard Oil Company, a part of which is quoted substantially in said paragraph. The full letter is quoted, so that would cover it. Now, there

is one question in regard to one letter passing between Mr. Foulds, representing the plaintiff, and myself representing the defendant, that I had no previous knowledge of until I heard it mentioned in the depositions taken in New York last June, and having seen the copy that Mr. Foulds introduced in evidence here yesterday; the letter purports to have been written by Mr. Foulds to me on September 4, 1918, in reply to a letter which I addressed to Mr. Foulds' firm on August 28, 1918. I have no objection to that letter being considered, if Mr. Foulds wants to offer it, as a letter of such a date; I have never received it, and not only did I not recollect the letter when I saw it, but I had diligent search of my files made, and as long as a year ago in correspondence with the Cooling Tower Company's representative, Mr. Fleming, in Los Angeles, took him to task for certain things which we will go into later. I called attention to the fact that I had never received a reply to my letter of August 28th. I merely make that explanation.

Mr. FOULDS.—The letter was offered in evidence, and it was stipulated on the record in New York that if Mr. Townsend were called as a witness he would testify that no answer was received to that letter.

The COURT.—Was a copy of the letter put in evidence?

Mr. FOULDS.—A carbon copy of the letter is here before the Court.

The COURT.—And it was identified as a letter

that was mailed [234—98] by you or your office to Mr. Townsend?

Mr. FOULDS.—Yes.

The COURT.—It will be admitted.

Mr. FOULDS.—I refer to the letter, Plaintiff's Exhibit 22, dated September 4, 1918.

Mr. TOWNSEND.—While on the subject, Mr. Foulds, it might shorten matters, if agreeable to you, to offer copies of some letters as between myself and Mr. Fleming, and the reply of his counsel to me.

Mr. FOULDS.—I do not dispute those letters, except that Mr. Fleming had no authority to represent us in any way. He was our selling representative here, just as Mr. Braun was our selling representative here before him. He has no authority except to try to place our towers on the Pacific Coast.

The COURT.—What do the letters amount to?

Mr. TOWNSEND.—This is in connection with our counterclaim. I may be a trifle premature in offering it.

The COURT.—That part of it is all right.

Mr. TOWNSEND.—But I am trying to put all of these documents in at the same time. On October 19, 1922, I addressed a letter to Mr. N. O. Fleming, 261 South Middleton Street, Huntington Park, California, on behalf of Mr. Braun, calling attention to certain misrepresentations that had come to our attention that he, as the representative of the Cooling Tower Company, had been making to our customers, and causing us serious damage. Enclosed with that letter were copies of correspondence that I had

had with the Cooling Tower Company and Mr. Foulds in July and August, 1918, and I specified five different kinds of wrongs that they committed, and that this matter had been taken up many years before with the principals, and they had seen fit to lay off for several years, and we heard nothing from them until quite [235—99] recently, and I quoted those—

Mr. FOULDS.—It is understood I object to these.

The COURT.—Yes, I want to know what it was, so that I can pass on the objection.

Mr. TOWNSEND.—I do not want to use any improper tactics to get a letter before the Court.

The COURT.—It is entirely proper to state the contents of the instrument; I cannot pass on it without knowing what it is.

Mr. TOWNSEND.—I think this will show the point. I called attention that they had not seen fit to bring suit or try out any question of infringement, if they honestly thought infringement existed, and that Mr. Braun had borne these misstatements as long as he could, and if there was not complete retraction we would take action ourselves; my letter was written on October 19, 1922, and I received shortly after that a letter written on October 23, 1922, by Frederick W. Lake, an attorney of Los Angeles, on behalf of Mr. Fleming, stating the matter would receive his immediate attention.

The COURT.—Is that all there is to it?

Mr. TOWNSEND.—There is a little more to it. The letter says:

“Mr. N. O. Fleming has consulted me with reference to the matter set forth in your communication of October 19, 1922, relative to the controversy that has arisen in connection with the construction of certain cooling towers. Inasmuch as the Cooling Tower Company, of New York City, would be the principal defendant in interest in any litigation instituted on behalf of your client, and inasmuch as all patents, files and other data are in the immediate possession of that corporation, I have advised Mr. Fleming to forward your communication, with the correspondence enclosed therein, to the Cooling Tower Company, at New York, for attention and reply.

“I believe I can assure you that the matter will be given [236—100] immediate attention, and that you will hear from the corporation in due course. Inasmuch as the corporation will be unable to receive and reply to your communication within the five-day period required by you, however, I request that any litigation at the instance of your client be delayed until the corporation has had a reasonable opportunity to take the matter up with you.”

On October 25 I acknowledged receipt of that letter, in which I stated:

“I have your letter of the 23d instant, and have referred same to my client for further instructions. Any action we might take in the immediate future while awaiting your advices from the Cooling Tower Company would, of

course, necessarily depend, in a large part on the conduct of Mr. Fleming with relation to my client's business.''

The next we got was a suit filed here in about a month.

The COURT.—Where is this material, Mr. Townsend?

Mr. TOWNSEND.—It is material on the line of the counterclaim, the conduct, and also on the matter of laches.

The COURT.—Does it add anything to your claim of delay or laches, or to your right to reparation for wrong done you because you write a letter about it? How does the writing of a letter add to or detract in any way from your position?

Mr. TOWNSEND.—Only in this, that it is an indication that the only reason they acted and brought this suit was to save their faces, after years of delay.

The COURT.—I do not think the reasons for the bringing of the suit are in the least material. Do you think they are?

Mr. TOWNSEND.—But this correspondence is part and parcel of the correspondence, part of which was introduced in New York by them; they introduced the letters, themselves, that passed between Mr. Foulds and myself, and now this is a continuation [237—101] of the same correspondence.

The COURT.—All right, I will let it in. I do not think it amounts to anything on earth.

Mr. FOULDS.—It is objected to as immaterial.

The COURT.—If it turns out as immaterial I will strike it out. I am letting it in largely on the theory that it cannot hurt you.

(The document was marked Defendant's Exhibit "KK.")

Mr. TOWNSEND.—I offer the assignment of the two patents which are in suit from Mr. Braun to the corporation.

Mr. FOULDS.—Unrecorded assignments?

Mr. TOWNSEND.—Yes.

Mr. FOULDS.—Dated February 10, 1923?

Mr. TOWNSEND.—Yes. Prior to February 10, 1923, the defendant corporation did not own either of these patents.

Mr. FOULDS.—That is what I mean.

Mr. TOWNSEND.—I offer the assignment from Braun to the corporation dated February 10, 1923, and ask that it be marked Defendant's Exhibit "LL."

(The document was marked Defendant's Exhibit "LL.")

Now, I want to make a brief statement in regard to the first Braun patent, that has been included in this suit. At the time that the suit was brought, from the information that I had before me I thought that the plaintiff had infringed that first patent. They may have, but I have not the proof of it; so while the patent is before you, and in order that our position might not be misunderstood, the defendant offered to withdraw the patent after plaintiff had actually taken proofs in New York, or leave the patent stand. We will not be able to

offer any proof of infringement of the first patent, so about all the Court can do would be just to disregard it or find it valid and not infringed, whatever disposition your Honor wishes. Our [238—102] proof in regard to the infringement of the second patent is directed to the matter that I called attention to, Claims 1, 2 and 10. We have not at this time any proof that they have infringed any of the other claims. I make that statement in fairness to counsel and to the Court. My first witness will be Mr. Shattuck.

Mr. FOULDS.—When you say you make no claim of infringement of the first patent, you mean patent 1,334,515?

Mr. TOWNSEND.—Yes, of 1920.

TESTIMONY OF CHARLES H. SHATTUCK,
FOR DEFENDANT.

CHARLES H. SHATTUCK, called for the defendant, sworn.

Mr. TOWNSEND.—Q. Will you please state your age, residence and occupation?

A. Age, 33; residence, Pasadena; occupation, secretary of C. F. Braun & Co.

Q. How long have you been connected with C. F. Braun & Co., defendant corporation?

A. I went with C. F. Braun & Co., in late 1913 or 1914.

Q. And have been with them continuously since?

A. With the exception of some eighteen months in the army during the war.

Q. Are you an engineer by profession?

(Testimony of Charles H. Shattuck.)

A. I graduated from Stanford University in engineering, and have followed it up to a year or so ago, when I became secretary of the company, and have followed it indirectly since then.

Q. Are you familiar with the construction employed by the Braun Company in the erection of its cooling towers? A. I am.

Q. And particularly with reference to the construction illustrated in the model Exhibit "D," as to panel louvers and supporting them in the tower, and extension of the deck joists, etc.?

A. I am.

Q. I have particular reference to the second Braun patent, 1,442,784. What was your first connection with and knowledge of [239—103] that particular construction I have referred to?

A. That construction went through a process of development some years ago, and I took it up on being discharged from the army, and went in on drafting work under Mr. Braun's instructions to design an improved water tower.

Q. Just what was that work that you first took up and the condition of the work when you came out of the army?

A. It was engineering and drafting work, tower designing and work on our other specialties.

Q. Had any work been done on the design of the particular form here when you returned from the army?

A. As I remember, yes, he had done quite a little sketch work, and preliminary consultation work.

(Testimony of Charles H. Shattuck.)

Q. When was it you came out of the army?

A. I was discharged in March, 1919; the armistice was 1918.

Q. Did you start in immediately on this work with Mr. Braun?

A. I started in picking up the threads of the design work, and I followed out the details.

Q. Can you tell us from the model exactly the character of the work that you did at that time, and what had to be done, and over what period of time that was being done?

A. As I recollect on taking up the work, we were working on a complete wooden tower, endeavoring to make all members of that tower take care of certain stresses and strains, and not be a dead load or not functioning in that respect. It was important to do this owing to the fact that we should get a tower made of wood that would not contain large structural members which would hinder the passage or stop the flow of wind through the tower or windage through the tower; we bore these facts in mind, also economical facts as to cutting down lumber to the minimum, and facilitating field erection, and also the length of lumber, [240—104] using lengths that were most economical to purchase.

Q. Can you give us some idea of the weight in pounds, or tons, or in any way you want to express it, of such towers?

A. As I recollect, these towers carry loads up to—the water alone, 100,000 gallons, would be roughly 800,000 pounds per minute, and distrib-

(Testimony of Charles H. Shattuck.)

uted over the tower from some flume which often times has considerable head. There were numerous loads. Of course, there was a windage load to take into account, and the dead weight of the tower itself, the timber and wood material.

Q. What is the weight of a gallon of water?

A. It is 8.33 pounds, as near as I remember. I have not looked it up for two years.

Q. Now, were you able to solve these problems of strain and stresses and wind velocity?

A. We believe we were able to—we know we were able to solve it in this present design of a cooling tower shown in the exhibit.

Q. Can you mention the members or elements or indicate them, which contribute in your opinion to that desired result?

A. The transverse members and longitudinal members supporting the deck that extended beyond the columns to hold the end of the louver —by employing that transverse member extended beyond the column we were able to get a very rigid structure, and it enabled us to use the louvers to form a truss that braced the whole structure; heretofore the louvers has been merely to prevent water from leaving the towers, but had performed no function in bracing the tower in its entirety.

The COURT.—Where does that word come from, “louver,” in that connection. Is it a common architectural term?

A. I believe “louver” is a common architectural term, such as on the top of a barn, or most any-

(Testimony of Charles H. Shattuck.)

thing that will allow the air to go through. I [241—105] am not familiar with the exact definition.

Mr. TOWNSEND.—Q. To your knowledge, has the plaintiff corporation erected any wooden towers in this district? A. They have.

Q. Where and when?

Mr. FOULDS.—May I cross-examine on that point as to how this witness knows what the plaintiff corporation has done?

Mr. TOWNSEND.—I think we will show that.

The COURT.—If you want to you may do so.

Mr. FOULDS.—Q. What knowledge have you as to the work of the plaintiff?

A. I have witnessed the erection of their towers.

Q. What reason have you to believe that the plaintiff had anything to do with that erection?

A. There is one particular tower that I watched being erected.

Q. I am not questioning the erection of the tower; I am questioning the connection of the plaintiff with that erection. Had you any knowledge as to who erected the tower?

A. I saw the plaintiff's name-plate on the tower. I saw the contract, and the date of the contract on that particular tower.

Q. Have you that contract?

A. I have not that contract.

The COURT.—Q. Did you see the contract in the Cooling Tower Company's office?

(Testimony of Charles H. Shattuck.)

A. No. The contract was in the possession of the owners of the tower.

Mr. FOULDS.—Q. Do you know whether the plaintiff merely sold the parts of the tower and someone else here erected it?

A. To my knowledge the tower was erected by the Cooling Tower Company.

Q. What do you mean by that? Do you mean you believe it?

A. I saw the contract for the tower.

Q. You mean in your opinion the plaintiff erected it. Is that what you mean?

A. My statement was based on the fact that I saw the contract and saw the name-plate on the tower.
[242—106]

The COURT.—The contract between the owner and the plaintiff? A. Yes.

Q. Did the contract include the work of erecting the tower?

A. I was not allowed to read the contract.

Mr. FOULDS.—You merely saw the cover of the paper containing the contract?

A. He turned the pages over showing your name, and I read the date of the contract.

Q. But you did not read the contents of the paper? A. I did not.

The COURT.—Is there any dispute about?

Mr. FOULDS.—Yes, just as the Shell tower was erected here by Braun; we do not do erection here at all; we do not prosecute any business in this state. Our solicitor, if you will call him that, so-

licits business on his own account. We have the structural work done in New York, and we do not erect in this state.

The COURT.—Do you send out the material fabricated?

Mr. FOULDS.—The structural steel is fabricated, but the wood, I think in every case, originates here in California.

Mr. TOWNSEND.—This is a wooden tower we are talking about, and not a structural steel tower.

Mr. FOULDS.—But we do not do that.

Mr. TOWNSEND.—We will call on the plaintiff to produce that contract which they have with the Pasadena Ice Company.

Mr. FOULDS.—I cannot produce anything on a minute's notice.

The COURT.—Of course, that is not reasonable to expect, that counsel carries around with him the contracts, unless he has some previous notice. To what point is the erection of these towers directed?

Mr. TOWNSEND.—To the point wherein they have appropriated our method of construction of extending the floor joists to give combined strength to the tower, and support and co-operate [243—107] with the louvers as supporting members. I think Mr. Shattuck, if permitted to go a little bit further, will produce photographs and tell when they were taken, and when he saw the tower.

The COURT.—That is not competent now.

Mr. TOWNSEND.—And the name-plate or a

copy of the patent numbers that appear, and the legend that appears on these towers.

The COURT.—Here is a flat denial that they do any such thing, that they construct any towers at all; that all they do is to solicit business and then what—to give license, or what is the nature of it?

Mr. FOULDS.—The transaction is as was in the Braun Case.

Mr. TOWNSEND.—If I may interrupt a minute, this contract that Mr. Shattuck refers to is a contract by the plaintiff Cooling Tower Company and the Pasadena Ice Company, the user. Mr. N. O. Fleming is the representative—I don't know what they want to call him—of the Cooling Tower Company, and as seen from the correspondence Mr. Lake, the attorney, refers the Fleming matter right to the principals in New York. Now, in the Shell case, the contract was between the Cooling Tower Company, or its predecessor, Mitchell-Tappen Co., and Mr. Braun, and the Braun Company's contract was with the Shell Company. So the work of the Shell Company was not the work of the plaintiff. It was Mr. Braun's work. The work with the Pasadena Ice Company, which we complain of, is direct work by contract with the plaintiff. The two cases are not parallel.

Mr. FOULDS.—Might I interrupt you for a minute? In the Braun case, the Shell plant refinery at Martinez, we sent on the contract with the name blank to have Mr. Braun put in there the name of the purchaser.

Mr. TOWNSEND.—We have those contracts; we will produce the contracts, as to what their contents are. [244—108]

The COURT.—Mr. Foulds, what is the plaintiff's method of doing business?

Mr. FOULDS.—We are told by representatives here, or our solicitor, whatever we may call him, he is not our agent, of a prospect, told of the weather conditions, the quantity of water to be cooled, the Government reports as to the barometer, and so on, and we send him a plan which we think will be suitable for the purpose of that company. He sends on the data to us and we send a contract, which may be filled out in his name and may be filled out in the purchaser's name, that is, the user's name, and the man here in California, or the purchaser or customer may get the wood; in other words, we give them the plan for the tower.

The COURT.—In effect, you constitute them a licensee under your patent?

Mr. FOULDS.—That is it.

The COURT.—All right. If you license them, that is, you license the user to contract that tower for his own use, is the company any less an infringer than if it came out and actually constructed the thing?

Mr. FOULDS.—It would depend on how they constructed that tower. If they did put in some tower that was not in accordance with the plans, the company would not be.

The COURT.—If they went ahead and added

something that was not in accordance with the plans, that would be right. I see your point there. It may be sound, Mr. Townsend. In other words, would you not have to show that this tower, wherever it was, was constructed in accordance with the license granted by the plaintiff?

Mr. TOWNSEND.—There is something else to consider in connection with that. If Mr. Foulds is seeking to point out that [245—109] they would not be direct infringers because they had authorized somebody else to do it—

The COURT.—I guess he don't mean that.

Mr. TOWNSEND.—They would be contributory infringers. On the other hand, the fact that the name-plates go on there and that after the work is done—

The COURT.—Supposé I have got a patent, and you are in a remote state, and I send you my plans and specifications and send you my name-plate, with the number of my patent on it, and tell you to go ahead and build and you go ahead and build, and you incorporate features that are not in my patent, that had never been mentioned between you and me, and infringe some other fellow's patent, and then you put my name-plate on it; am I responsible, unless it is shown that the incorporation of these additional features was under my license or sanction?

Mr. TOWNSEND.—I should say not, because the man was acting beyond the scope of his authority. But I think that things have become some-

(Testimony of Charles H. Shattuck.)

what reversed here on the plaintiff's part. If it is shown that there existed a contract between the plaintiff and the Pasadena Ice Company for the erection of a cooling tower, and a cooling tower was erected which infringed, we have the right to indulge in every presumption that an agent acted within the scope of his authority until it is shown otherwise.

(After argument.)

The COURT.—I think I will admit the evidence, and in the event that I decide that the particular installation shown by the extension of these cross-members as a support for the levers is an infringement, I will give the plaintiff an opportunity to make such showing as it may desire. I will let the testimony in.

Mr. TOWNSEND.—Q. Will you state where you saw that tower that was manufactured by the plaintiff and had its name-plate on [246—110] it?

A. It was at the plant of the Pasadena Ice Company, at Pasadena, California.

Q. When did you see that plant, after being erected, or in the course of erection?

A. I noticed it in the course of erection, or watched it being erected, during, to the best of my knowledge, January, February and March of 1923.

Q. What was the date of the contract that you have referred to here?

Mr. FOULDS.—I object to that.

(Testimony of Charles H. Shattuck.)

The COURT.—I will sustain the objection.

Mr. TOWNSEND.—Q. Can you describe the tower as you saw it being erected?

A. The tower consisted of columns similar to the exhibit, with transverse members running across, holding the decks, and extending beyond the columns, supporting the louvers in a manner similar to the exhibit.

Q. Exhibit "D"? A. Yes, Exhibit "D."

Q. Have you any drawings or photographs illustrating the construction as you observed it?

A. I have photographs taken by our office on March 12, 1923, showing various views of this tower at the Pasadena Ice Company.

Q. And do you know whether these photographs are true and correct of what appears therein?

A. They are true to the best of my knowledge.

Q. I understand that you observed that tower on more than one occasion?

A. I had occasion to pass there sometimes three or four times a week, and I was particularly interested in it, as from the time they put up the columns and started the transverse members, I called it to Mr. Braun's attention that apparently there was an infringement there.

Q. Did Mr. Braun see the tower to your knowledge?

A. To my knowledge he saw the tower from a distance. [247—111]

Q. Did you and he together at any time take occasion to inspect it?

(Testimony of Charles H. Shattuck.)

A. We did not inspect it together, no.

Q. Now, can you tell what the patent numbers were on the name-plate that you referred to? Did you make a note of it?

A. The patent numbers on the back of these photographs which I made notes of and put on on my return to the office the day I climbed on the tower.

Q. And these numbers are as appear on the back of the photographs?

A. These numbers appear on the backs of some five photographs.

The COURT.—Q. These patent numbers were on the name-plate?

A. These were on the name-plate.

Q. And the name-plate was the name-plate of the Cooling Tower Company? A. Yes.

The COURT.—Are these the numbers of the patents owned by your Company?

Mr. FOULDS.—Yes. That seems to be a copy of the name-plate that we use.

Mr. TOWNSEND.—In that Pasadena Ice Company tower, were the uprights and horizontals, louvers, all of wood or otherwise?

A. They were all of wood.

Q. Were the transverse deck-supporting members which extend beyond the vertical posts also of wood? A. They were of wood.

Q. Were they in one continuous piece, or a series of different pieces?

(Testimony of Charles H. Shattuck.)

A. One continuous piece.

Q. Are you able to tell what the action of those extensions of the deck supports beyond the vertical posts with the louvers would be? Would it be the same or different from the action appearing in the Braun tower?

A. The action, I believe, would be the same as in the Braun tower, to the best of my knowledge. I have not analyzed it.

Q. Would it be the same or different from the action where [248—112] the louvers would be supported as for instance in the model Exhibit "G," or the other familiar construction employed by the plaintiff and illustrated in its catalog?

Mr. FOULDS.—I object to the question on the ground that it is indefinite. I don't understand what counsel means by the action.

The COURT.—I do not, either. You had better reframe the question so as to indicate what you mean.

Mr. TOWNSEND.—Q. State whether or not the construction of extended continuous one-piece joists supports in the Pasadena plant in co-operation and coaction with the louvers in that plant would in any way contribute to or detract from the strength of that tower at the Pasadena plant?

A. It would contribute in the same manner as the construction of the panels and transverse members in the Braun tower.

Q. Contrast that structure of the Pasadena ice plant in those features with the structure of the

(Testimony of Charles H. Shattuck.)

plaintiff as represented by Exhibit "G," or its catalog, where the cross-joists are not extended beyond the supporting columns and the louvers are supported otherwise?

A. I do not quite understand your question.

Q. I mean for you to contrast, if you can, or will, the construction of the Pasadena Ice Plant and the common and ordinary construction of the plaintiff represented in Exhibit "G" or in its catalog.

A. Do you mean to give the difference in the Exhibit "G" and the tower as I saw it?

Q. If there is a difference, yes.

Mr. FOULDS.—I object to that on the ground that Exhibit "G" is not an exact but merely a general illustrative model; it does not purport to be our exact construction.

The COURT.—What counsel is driving at is the same thing [249—113] as Mr. Braun testified to, and that was to the effect that there was a difference in the ability of the structure to sustain stresses, particularly lateral stresses—I guess only lateral stresses—when the transverse members were extended beyond the louvers put on and when they were not extended beyond.

Mr. TOWNSEND.—Lateral and diagonal as well. That is the point that I have in mind. Mr. Shattuck, will you give us your observation on that?

A. By extending the transverse members outwardly beyond the column and the upper part of the louver being hung from that transverse mem-

(Testimony of Charles H. Shattuck.)

ber and extended down at an angle to the next transverse member close to the column, a substantial truss is formed, which tends to make the tower in its entirety more rigid, both laterally and longitudinally. In a tower similar to one exhibited by Exhibit "G," the transverse members do not extend beyond the column, and the louvers and supporting members are purely a dead load on the tower, holding the louver there for functioning, the only function being to prevent the wind from carrying the water out.

The COURT.—Let me see that. I was not clear at all when Mr. Braun was testifying, even under this construction, supposing these are the lateral stresses—the wind is coming this way—why the longitudinal members would not aid in supporting the lateral stresses or if the strain was horizontal why the lateral members would not aid in supporting the horizontal members. I can't see it yet.

A. I believe it could be shown diagrammatically. I am trying to figure how I could explain it. It is rather difficult to clarify Mr. Braun's remark on that without a technical diagram.

Mr. TOWNSEND.—I believe that I will be able to clear that up if your Honor is in doubt, by Prof. Moser.

The COURT.—Yes, there is a lot of doubt, Mr. Townsend. [250—114]

Mr. TOWNSEND.—It ought to be cleared up, then. I will take the matter up later. We were referring a moment ago to these photographs. I

(Testimony of Charles H. Shattuck.)

will offer these in evidence as Defendant's Exhibit "MM."

The COURT.—They will be admitted on the same understanding that if there is a holding against plaintiff the plaintiff will be permitted to introduce evidence as to whether it was built in accordance with the license; that is, if the holding is this extension of the cross-members and the construction of the louvers upon them constitute an infringement.

Mr. TOWNSEND.—Q. Did you have occasion to make or have made a blue-print illustrating that structure?

A. I directed that sketches be made of this particular structure, and a rough draft made of the tower showing the general location of the transverse horizontal members, columns, and general details.

Q. Did I understand you to say you had a blue-print made of these sketches? A. I have.

Q. Have you satisfied yourself as to the correctness of that?

A. I am satisfied as to the general outline of this blue-print.

Mr. TOWNSEND.—I will offer this blue-print in evidence with the same understanding, and ask that it be marked Defendant's Exhibit "NN."

Mr. FOULDS.—I object unless it is merely introduced for illustrative purposes. I understand the witness to say that that merely shows generally or he is satisfied that generally shows the construction. I don't know how nearly exact that is.

(Testimony of Charles H. Shattuck.)

Mr. TOWNSEND.—It is not offered as a cooling tower drawing, but a drawing that Mr. Shattuck had made.

The COURT.—It is illustrative of the construction that he saw in this Pasadena tower. Is that correct?

A. Yes, omitting size of lumber and size of patent details. [251—115]

Q. Did you take the measurements on the tower?

A. Yes, the measurements were taken as shown on the blue-print.

Mr. FOULDS.—Q. What are these diagonal lines that are shown there; are they cross-braces?

A. They were labeled "tie rods."

Q. Are they only on one panel, or on both panels?

A. I don't quite understand what you mean by "one panel."

Q. This appears to be a panel and this appears to be a panel, indicating sections on the side of the central supporting columns.

A. This is one end of the tie rod. Four sections are shown, and the tie rods were in as shown there.

Mr. TOWNSEND.—Q. Will you kindly mark the vertical columns with a red A? A. Yes.

Q. And the transverse continuous deck-supporting members B? A. Yes.

Q. Will you mark the extensions, if there are such, of these continuous members B beyond the vertical posts A by the letter B-1?

A. Yes.

Q. And mark the louvers C? A. Yes.

(Testimony of Charles H. Shattuck.)

Q. Did you observe in that construction the character of deck slats, and whether they used splines or not?

A. The splines are shown in the upper corner.

Q. They are shown in detail in the upper left-hand corner? A. Yes.

Q. Were these splines fastened, or were they free?

A. To the best of my knowledge they were free. The tower had water on it at the time and I did not crawl inside to observe the slats.

Q. At the top is the detail of the distributor decking? A. Yes.

Q. And this is the detail, A, of what you call the drip deck? A. Yes.

Q. Was there any intermediate distributor deck?

A. No. [252—116]

Mr. TOWNSEND.—That is all.

Cross-examination.

Mr. FOULDS.—Q. You stated that to the best of your belief these splines were free. Did you try them at all? A. No.

Q. What did you mean by saying that?

A. I couldn't see any nails in there.

Q. Could you see nails down there?

A. Possibly on the end.

Q. Why did you volunteer that statement that to the best of your knowledge these splines were free?

A. Because I did not see nails.

(Testimony of Charles H. Shattuck.)

The COURT.—He did not volunteer it. I asked him.

Mr. FOULDS.—He should have said no, he didn't know. He said to the best of his belief they were free. I submit that is a volunteer statement without any knowledge at all. As a matter of fact, you had no foundation whatever for making that statement, did you?

A. I did not see any nails.

Mr. TOWNSEND.—Do you contend, Mr. Foulds, that they were nailed?

Mr. FOULDS.—No, but I merely wanted to show that the witness was anxious to go the limit in proving what he thinks ought to be proved.

The COURT.—I am not going to try this case on any such lines as that, Mr. Foulds.

Mr. FOULDS.—Q. Did you see the Shell Company tower in 1915? A. Yes.

Q. Do you recall the extensions of the deck members beyond the supporting columns?

A. I do not understand that question.

Mr. FOULDS.—Read the question.

A. No.

Q. There were horizontal frame members at each deck, were there not? A. Yes. [253—117]

Q. And at the point where these horizontal frame members joined the column there was a plate to which the horizontal members were attached, wasn't there?

A. I would have to look at the drawing to refresh my memory on that.

(Testimony of Charles H. Shattuck.)

Q. You may look at them. I show you the blue-print marked Exhibit 51.

Mr. TOWNSEND.—What tower are you speaking of?

Mr. FOULDS.—I am talking of the Shell tower erected by the defendant for the plaintiff in 1915.

Mr. TOWNSEND.—I don't know as this is cross-examination.

The COURT.—I think this is clearly cross-examination, Mr. Townsend.

Mr. TOWNSEND.—On the Shell tower?

The COURT.—Yes. Your whole examination was based on the theory that the extension of these cross-members is an infringement. Now, counsel has a right to ask him if it was not used on the structure built under a license from the plaintiff.

Mr. TOWNSEND.—I withdraw my objection.

Mr. FOULDS.—Q. Isn't this plate which I call to your attention at the end of the horizontal support of the deck?

A. That apparently is a small plate riveted to the column.

Q. It is riveted to the column, and riveted on one side to the extension of the deck and the other side to the deck, isn't it?

Mr. TOWNSEND.—I object to what you are calling an extension of the deck.

The COURT.—Overruled.

A. It is apparently riveted to this member, here.

Mr. FOULDS.—Will you mark that horizontal extension "X"? A. Yes.

(Testimony of Charles H. Shattuck.)

Q. The part that you have marked "X" on this sheet 109 is in substantial line with the horizontal deck member, isn't it? [254—118]

A. I do not see any deck member on here.

Q. Do you see the plate to which the deck member is attached?

A. I cannot certify that is the plate.

Q. Do you find a plate there that is apparently for a deck member?

Mr. TOWNSEND.—I think we ought to have the specifications, your Honor. This is bound to call for more or less of a conjecture, and might inadvertently lead to serious mistake.

Mr. FOULDS.—He knows perfectly what this is.

The COURT.—If he cannot read the plan without the specifications he can say so.

A. No, I do not.

Mr. FOULDS.—Q. What is this member that I now point out to you?

A. Two angles, back to back.

Q. Will you mark this angle "Y," the one to which you have referred? A. Yes.

Q. The other vertical member is another view of "Y," isn't it? A. Yes.

Q. Will you mark that "Y-1"? A. Yes.

Q. To the member which you have marked "Y" and "Y-1," you find a plate attached, do you not?

A. Yes, riveted.

Q. Will you mark that plate "W"? A. Yes.

Q. What would that plate "W" support?

A. I could not tell from this detail.

(Testimony of Charles H. Shattuck.)

Q. Do you see anything supported by that plate "W"? A. No.

Q. What is the member "X"?

A. An angle.

Q. By an angle, you mean an angle iron?

A. An angle iron.

Q. And that extends from where to where?

A. It extends from this point to this point.

Q. What do you mean by "from this point to this point"? Will you call it by name, so that we can understand it?

A. From this angle to this plate. [255—119]

Q. You mean it extends from the plate "W" to the upright column "Y," to another column to which you will please affix the letter "V"?

A. Provided these are columns. I cannot say off-hand whether they are columns, or not.

Q. I call your attention to the legend "I. P.," meaning "intermediate post."

A. I see no footing on here to indicate that is a column.

Q. Will you put a letter "V" on the vertical member which is connected to the vertical member "Y" by the horizontal member "X"? A. Yes.

Q. The other view to the left of the member "V" is a view from the other side, is it not?

A. The drawing does not indicate that. I presume it is intended to be that way.

Q. Do you read blue-prints? A. I do.

Q. Don't you know, as a matter of fact, that the "V" is shown from two views on that drawing?

(Testimony of Charles H. Shattuck.)

A. Well, if you will compare this, there is no indication of the center line on that hole or any of these places here.

Q. Do you believe that these two vertical views are not intended to represent the same member viewed from different sides?

A. I believe they are intended to represent the same member.

Q. Will you put "V-1" on the other view of "V"?

A. Yes.

Q. Now, extending from one end of the member "X" to the vertical column "Y" is an inclined member. What is that?

A. An angle, according to the drawing.

Q. And by "an angle," you mean a strip of angle iron?

A. A strip of angle iron.

Q. Will you put the letter "T" on that angle iron extending diagonally from the member "Y" up to the end of the member "X"?

A. It extends from "V" to a plate which has not been designated.

Q. Will you indicate it by "T," the diagonal member?

A. Yes. [256—120]

Q. What does that diagonal member "T" support?

A. It is rather difficult to analyze that just by looking at the drawing.

Q. Don't you know that that supports the louver?

A. As I remember on that particular tower there were slots in the angle supporting the louver, and I do not see any slots in that angle.

(Testimony of Charles H. Shattuck.)

Q. Could you think of anything else that that diagonal angle iron "T" could support except the louver?

A. It probably has a tendency to hold that angle in place.

The COURT.—We will take a recess now until Friday morning at ten o'clock.

(An adjournment was here taken until Friday, November 30, 1923, at ten o'clock A. M.) [257—121]

Friday, November 30, 1923.

Mr. TOWNSEND.—I suggest, Mr. Foulds, that Mr. Braun has given careful study to these blueprints and specifications which Mr. Foulds was kind enough to loan to Mr. Braun over the holiday, and I think if we put Mr. Braun on we will clear up the whole situation with regard to the blueprints.

The COURT.—All right.

Mr. TOWNSEND.—I think that would be the quickest way. Prior to that, your Honor, in accordance with the custom that prevails with regard to patent matters in this court, and particularly also in the Southern District of California, and before Mr. Harry Wright as Special Master, I have had prepared an affidavit of Mr. Moser, explaining some of the technical matters that have arisen in the trial. We only got this thing together late Wednesday, and I have handed Mr. Foulds a copy, and when we are through with Mr. Braun and Mr. Shattuck it will be quite proper

to present Mr. Moser for cross-examination. The affidavit sets forth in careful form the studied views of Mr. Moser on points of mechanics that have arisen, and it seems to be the quickest way to dispose of the matter, and in accordance with our usual practice.

Mr. FOULDS.—If your Honor please, this affidavit has just been handed me at half past ten now. The customary practice is to present it in advance of the hearing, so that counsel can study it and cross-examine. I have had no opportunity to read it over.

The COURT.—Yes, I think you are too late, Mr. Townsend. You will have to put your witness on.

Mr. TOWNSEND.—It was not possible, your Honor, to know that these things were coming up in advance.

The COURT.—Is Mr. Moser here? [258—122]

Mr. TOWNSEND.—He is here.

The COURT.—I will not admit it now.

TESTIMONY OF C. F. BRAUN, FOR DEFENDANT (RECALLED).

C. F. BRAUN, recalled for defendant.

Mr. TOWNSEND.—Mr. Braun, have you given thought and study to the several blue-prints of the Shell tower that we were discussing at the adjournment of the session? A. I have.

Q. Are you able to explain what is therein shown?

A. I am.

(Testimony of Carl F. Braun.)

Q. Have you studied those in connection with the specifications that were submitted? A. I have.

Q. Will you please proceed in your own way to explain these drawings with reference to the structure as actually put up at the Shell plant?

A. These drawings are not entirely complete, and they are not to scale, that is, they are distorted so that the drawing does not show clearly to the observer the relative location of all parts.

The COURT.—They purport to be to scale?

Mr. FOULDS.—I think the witness means that the scale is marked on here, and by referring to it you could show the distance, but the members in one place occupy a larger space than on another place on the drawing.

The WITNESS.—That means they are not to scale. For instance, here is a space nearly as long as this on the drawing; this shows 1 foot 3 inches, and this shows 3 feet. It was probably an error of the draftsman. If these members upon which the dimensions are shown have been broken, then the drawing would be proper.

Q. The lengths are marked, anyway?

A. The lengths are marked. In order to show more clearly the structure, I have had prepared a small sketch which is substantially the same as the [259—123] drawing for the louver panel.

Mr. TOWNSEND.—I ask that this sketch referred to by the witness that he had prepared, be marked Defendant's Exhibit "OO."

(Testimony of Carl F. Braun.)

(The sketch was marked Defendant's Exhibit "OO.")

The COURT.—What does that correspond to? This is a drawing of what? This is the plan for the Shell Company installation? A. It is.

Q. Where does that appear on here, on the blue print?

A. I can identify each member of the blue-print as I go along. Will that be satisfactory?

The COURT.—Yes, surely.

Mr. FOULDS.—Might it be noted on the record that the blue-prints referred to by the witness are Exhibit 51?

A. These drawings are not entirely complete, some drawings being referred to which are not here but with the aid of the specifications and my slight memory of the structure, I feel confident that I can describe it with reasonable accuracy.

Referring to drawing No. 116, showing the outlines of the tower, it will be seen that the tower consists essentially of a number of columns supporting on one side decks and on the other side louvers. These columns are of three types, namely, "L. P.," standing presumably for "louver posts," "I. P.," standing presumably for "intermediate posts," and "C. P.," standing presumably for "corner posts." These markings appear on the drawing 116, and on the respective detail drawings of these members.

Taking first drawing No. 59, particularly that portion of the drawing, the "L. P.," the louver

(Testimony of Carl F. Braun.)

posts, the member marked "1" on the detail drawing is a column which I have also marked on the sketch Exhibit "OO" by the figure "1" in a circle. The member marked "11" on drawing 59, and on sketch Exhibit "OO" is [260—124] a vertical spacing member presumably to align in space the various louver brackets. The member marked "12" on drawing 59, and similarly marked on sketch "OO" is a right angle for supporting the louver boards; there are a number of these angles at intervals throughout the height of the tower. The member marked "14" is a tie member between the column 1 and the spacer 11, and is inclined to be horizontal about 15 degrees. Both louver supporting members 12 and tie member 14 are secured at one end to the column 1 by means of a single half-inch rivet, so marked on the sketch "OO," and on the detail drawing, and at the other end to the vertical spacing member 11 by a single half-inch rivet. In order not to confuse my marking with any numbers which may appear on this drawing, I will mark the horizontal member, say "100," both on drawing 59 and Exhibit "OO"; this horizontal member is a right angle attached at one end to the column by single half-inch rivets, and at the other end to the vertical spacing member by a single half-inch rivet, and is drilled with a number of intermediate holes to which are bolted light wooden members, serving as a walk around the tower. Extending from column to column, that is, extending between the columns on the opposite sides of the

(Testimony of Carl F. Braun.)

tower, are deck supports not shown on No. 59, but shown on Exhibit "OO" and marked "101." These deck supports are secured at one end to one of the columns by a single bolt, the hole for which I have marked "102" on sketch Exhibit "OO," and similarly on drawing 59. These transverse deck members are not supported at the same point in the column, as are the louver supports, or 15 degrees to the horizontal tie members marked "14."

The COURT.—They are, therefore, not extensions of those deck-supporting members?

A. They are therefore not an extension of the deck-supporting members. I have shown this clearly [261—125] on the sketch, which shows that the deck-supporting members are attached to the column at a point above the point at which the small, angular appended louver members are attached.

Mr. TOWNSEND.—Q. Is that your recollection of the actual way that the structure was put up?

A. That is my recollection. This is shown on detail 59, where holes 102 are inclinable, the hole for receiving the bolt passing through the angle and the horizontal deck support. I call particular attention to the fact that louver-supporting members 12, a 15 degree to the horizontal member 14, and horizontal walk-supporting member 100 form no part of the structural frame of the tower, but are appended thereto in a manner similar to that of a fire escape on a building, or a shelf upon a

(Testimony of Carl F. Braun.)

pantry wall. Referring to the specifications, I direct particular attention to Fig. 8.

The COURT.—The specifications are not in evidence, are they?

Mr. FOULDS.—No.

Mr. TOWNSEND.—I would like permission to have them admitted for consideration.

The COURT.—Yes, I think they should be in evidence.

Mr. TOWNSEND.—I offer them as Exhibit “PP.”

(The specifications were marked Defendant’s Exhibit “PP.”)

The WITNESS.—These specifications and instructions have been of material assistance to me in understanding the drawings.

Mr. FOULDS.—Is there included with Exhibit “PP” the letter which we sent to you?

Mr. TOWNSEND.—That is the letter I have already put in evidence.

Mr. FOULDS.—I think not.

Mr. TOWNSEND.—There is no objection to its going in if it has not. [262—126]

A. I refer to Fig. 8 of the specifications, marked “Plan view, corner of tower”; this sketch shows a temporary bracing from the vertical column to the appended louver supporting bracket. I read particularly the following paragraph from this specification, this paragraph being entitled, “Temporary bracing”:

“In both steel and wood construction the out-

(Testimony of Carl F. Braun.)

standing parts of the C. P. posts should be accurately set at 45 degrees and held by temporary wood struts before laying the louvers as illustrated in Fig. 8. Put in as many struts as required to take any twist or bend out of the post. Any twist or bend in the I. P. or L. P. posts should be likewise taken out before bolting up. After the louvers are completed the open spaces"—this has no further bearing. I have referred particularly to Fig. 8 to show that the louver-supporting members are not an integral part of the tower structure, and have practically no strength to resist rotation in a direction around the vertical axis of the column.

On drawing 59 is shown another detail which is of the C. P. or corner post, marked "C. P." on plan drawing 116. This detail differs from the "L. P." post detail principally in the fact that it is designed to be attached at an angle of 45 degrees to the columns, as shown on drawing 116. The column in this case sets square with the tower so that it would be impossible to bolt the angle louver supporting members to the column without bending them. They are instead bolted to small plates which I will mark 103; these small rectangular plates are bent at an angle of 45 degrees at approximately their center and are attached to the column at one end by two rivets, and to the louver-supporting member at the other end by a single rivet. The transverse deck-supporting members are bolted directly to the columns in a manner similar to the way in which the transverse [263—127]

(Testimony of Carl F. Braun.)

deck-supporting members are bolted to the L. P. posts. For convenience, I mark the hole for receiving the bolt for the transverse deck-supporting member "102-A," as corresponding to the similar hole marked "102" in the detail of the L. P. post. On drawing 109 is shown a detail of the I. P. or intermediate post which was supplied in two pieces, and is shown on the drawing in two pieces, that is, the portion on the right-hand side of the drawing looking from the side marked "bottom," is actually attached to the part shown on the left-hand side of the drawing. These I. P. or intermediate posts differ in design from the L. P. posts principally in the fact that there are two angles instead of one angle to the main column. As there are two angles, it is impossible or impracticable to bolt directly to the column the louver-supporting members, and these are supported by small plates marked "105" on drawing 109; this plate is riveted to the column by two rivets marked "106," and the louver-supporting members are riveted to the plate by a single half-inch rivet marked "104." The horizontal deck members are bolted to the column through hole 108 above the entire plate, and particularly above the point in the plate at which the louver-supporting members are attached. Plates 107 are riveted to the column and receive at holes 109 longitudinal tie members of the tower, and in holes 110 bolts, or eyes, or some similar device for securing tie rods shown on elevation 2-2 and marked "111."

Q. Elevation 2-2 on drawing 116?

(Testimony of Carl F. Braun.)

A. Yes. Clips marked "112" on drawing 109 are angles riveted to the column with a single clip upon which are set but not attached the deck-supporting members, presumably, I believe, to carry upon the column the weight of the transverse deck members should the single bolt failor become loosened and fall out. In all three types of [264—128] columns there are no deck-supporting members extended beyond the column.

I call particular attention to the fact that the louver-supporting angles and ties are only an inch and a half by three-sixteenths—that is, the legs of the angle are an inch and a half and the thickness of the angle three-sixteenths of an inch. In my previous description of the C. P. posts, drawing 59, I failed to mention the angle members 113 and 114, which, I believe, are spacing members.

Q. Do you care to make any contrast or comparison between the structure therein shown and your own patented structure of extension of members?

The COURT.—That is not necessary, Mr. Townsend.

The WITNESS.—If there are any other details that I could explain to your Honor I will do so.

Mr. TOWNSEND.—That is all with Mr. Braun on this matter.

Cross-examination.

Mr. FOULDS.—Referring to the plate 105, several of those are shown on the column, are they not?

A. Yes.

(Testimony of Carl F. Braun.)

Q. Is what you have called the clip and marked "112" part of this plate 105? A. It is not.

Q. Is it shown on the plate 105? A. It is not.

Q. Is there any line on this plate 105 which indicates the so-called clip? A. There is not.

Q. Then to refer to the figure 105, you cannot indicate any part of the clip 112?

A. I can indicate clip 112 on both elevations.

Q. Will you indicate the clip 112 on the elevation?

A. I will mark it likewise 112.

Q. There appear to be three bolts or rivets shown on this plate 105; is that correct?

A. There are three rivets passing through plate 105. [265—129]

Q. Will you tell us what the upper hole on the left-hand side of this plate is used for?

A. Let us, for convenience, give the rivet a number.

Q. I think it is 104, is it not?

A. It is marked 104.

Q. That is for the louver support?

A. That is used for attaching the louver support.

Q. Now, there is a hole or rivet almost on the same level with this hole 104; what is that used for?

A. There is a hole or rivet not on the same level with the rivet hole 104 which passes through the angle clip 112, the column angle, the plate 105, the other column angle, and another clip 112.

Q. What is the difference in the horizontal level of these two holes, 104 and 112 in inches?

A. It is small.

(Testimony of Carl F. Braun.)

Q. It is a very small fraction of an inch?

A. It is one-half inch.

Q. Between the level of these two holes?

A. Between the horizontal level of the two holes.

Q. What is the whole below this hole 112 used for?

A. It is used for fastening together plate 105 and the column angles, that is, the main vertical column angles.

Q. That is the hole that you have numbered 106, is it not?

A. I have numbered two of these 106; as you wish to differentiate these holes, I now number one of them 106 and 115, which may possibly to some extent affect my previous testimony.

Q. It will be understood that previously where you referred to holes 106 that you indicate now 106 and 115. A. Yes.

Q. And above these holes 106 and 115 there appears to be a hole which you have marked "108."

A. Yes.

Q. That is used for what purpose?

A. For bolting to the vertical column angle and horizontal deck-supporting members.

Q. What is the vertical distance between the planes of the [266—130] point of attachment to the vertical post?

A. I understand your question to mean the vertical distance between the horizontal planes passing through the center line of the hole marked "104" and the corresponding hole marked "108."

(Testimony of Carl F. Braun.)

Q. You understand I am referring to these two holes?

A. I understand. This dimension, as shown by the drawings, is $2\frac{3}{8}$ inches.

Q. What is the vertical distance between the planes of the horizontal deck supports and the inclined louver supports, referring to the point of attachment to the post? I mean what you have called horizontal tie rods between supporting posts and the upper end of the louver?

The COURT.—I do not believe he called these the horizontal tie rods. They were what you called spacing members.

Mr. FOULDS.—Call them spacing members.

A. Referring to the drawing 59, I believe it will be clearer if we call that No. 14 as shown on the drawing 59.

Q. Then what is the vertical distance between the point of attachment of this No. 14 and the horizontal deck support?

A. This member is attached, not directly to the column, but to the plate at the same point as is the louver-supporting angle, and the difference between the planes is therefore the same, namely, $2\frac{3}{8}$ inches.

Q. If the No. 14, which you call the spacing member, were shifted $2\frac{3}{8}$ inches, it would be exactly horizontal with the horizontal deck, and in the same plane, would it not?

The COURT.—It is obvious if they are $2\frac{3}{8}$ inches apart and are moved $2\frac{3}{8}$ inches they would be in the same plane.

(Testimony of Carl F. Braun.)

A. It is not obvious that this member would be a horizontal extension of the deck member.

The COURT.—Not necessarily.

A. That is what I understood [267—131] the question to be.

Q. It depends on its angle, of course.

A. If that is the question, I am unable to determine it from the drawing, as it would involve an accurate determination of the angle.

Mr. FOULDS.—Q. It would be approximately, would it not?

A. I am unable to say without determining the angle.

Q. This temporary bracing that you have referred to in connection with the instructions to the erector, Exhibit "PP," is merely used temporarily during the course of erection, and before the louver boards are bolted to the louver supports; isn't that correct?

A. Yes, that is correct.

Q. When the louver boards are bolted to the inclined support, then this temporary bracing is unnecessary, and is taken away?

A. The temporary bracing is removed.

Q. If these holes through the vertical posts were placed close together, it would tend to weaken the posts, wouldn't it?

A. What holes do you refer to?

Q. I refer to the holes through the vertical posts, my inquiry being directed to the question as to whether the slight difference in the horizontal plane

(Testimony of Carl F. Braun.)

of this hole was not solely because by separating the holes they would get the strength of the posts?

A. Well, I believe that the holes are separated because it was desirable to put in two holes.

Q. But, could there be any other reason that you can think of for separating these holes, except to get the strength of the material, not to cut away the material on the same line? A. Yes.

Q. What?

A. To fasten the plates firmly together.

Q. Why couldn't that have been done in the exact plane, except for the weakening effect on the posts?

A. I doubt if the post is wide enough to receive two rivets.

Q. That is the only reason you think of? [268—132]

Mr. TOWNSEND.—Have you anything to add, Mr. Braun, to what you have already said?

A. Otherwise, I can add that the transverse deck-supporting members are attached to the columns by one eye-bolt, and are therefore free to rotate to that point. I would like to introduce a small model to show that feature.

Mr. FOULDS.—Q. The triangle attached at each corner by a single pin is absolutely rigid, is it not?

A. It is.

In order that this model marked Exhibit—

Mr. TOWNSEND.—The little pasteboard model is offered as Defendant's Exhibit "QQ."

(The model was marked Defendant's Exhibit "QQ.")

(Testimony of Carl F. Braun.)

A. In order that this model may be clearly reconciled with the louver posts shown on drawing 59 and on sketch Exhibit "OO," I will give these members the same markings as I gave them on drawing 59, No. 1 being the column, and 11 being the vertical spacing member, 12 being the louver-supporting member, 14 being the 15 degree to the horizontal spacing member, and I will also mark the horizontal deck supports with the figure "101," similar to the marking of the like members on sketch Exhibit "OO."

The COURT.—What office does that which you call the vertical spacing member fulfill?

A. I believe that it is an alignment member for holding these appended louver angles in alignment and properly spaced. These louver angles are quite light, and would not, by themselves, remain in alignment.

Q. Does it contribute anything to the general rigidity of the structure?

A. I do not believe that it does. To answer that question accurately, I would have to analyze it thoroughly with a diagram. The point I wish to bring out particularly with this model is that these transverse deck-supporting members are not secured to either the louver-supporting members or the column in such a manner as to prevent rotation. The louver members are, [269—133] therefore, incapable of adding any strength to the stability of the tower; as the wind blowing against these louvers, particularly on the outside, would have a tendency

(Testimony of Carl F. Braun.)

to rotate the column on its base to the right, these appended louver supports can absolutely in no way whatsoever offer any resistance to that rotating effect; they would rotate as a whole; the stability of this Mitchell-Tappen tower, as shown by these drawings, this sketch Exhibit "OO," and this model must be obtained solely from tie rods, guy wires, or some similar devices tying the columns together, and attached at such angles as to resist rotation of the column in space.

Q. I can see that very clearly in so far as the louver structure on the side in the direction from which the wind comes, but I am unable to see that that would be true as to the louver structure on the other axis.

A. I presume that you are thinking of the end louver on the tower?

Q. Yes.

A. These towers are relatively long with relation to their width and they are by selection installed transversely of the prevailing wind, that is, it is desired that the wind blow across the tower, rather than longitudinally of it, so that more wind will enter the tower. Any bracing, due to the end members, would not add material support to a long tower; they would have to be supported through the tower. As a matter of fact, referring to plan 116, the louver boards are laid upon the inclined supporting bracket marked 12 on drawing 59, which are very light members, which are attached to the end columns only by single half-inch rivets and are

(Testimony of Carl F. Braun.)

in no way extended into or secured to the tower structure in such manner as to prevent rotation of the appended bracket about the vertical axis of the column; that is, a wind blowing in the direction that I indicate by an arrow marked "Wind" would, if the louvers were [270—134] secured firmly to the appended brackets, tend to rotate the brackets about the column. As I have previously stated, these brackets would have practically no resistance, or no substantial resistance to the rotation about that column. On the contrary, in the Braun structure these louver-supporting members are integral with and, in fact, a part of the structural members of the tower which project from the tower structure, and are substantial structural members, and are held from rotation either around the vertical axis of the tower or in the horizontal direction of the axis of the tower.

Mr. FOULDS.—Q. Is there any more rigid structure known to mechanics than a triangle tied at each of the three corners? A. I don't know.

Q. Do you know of any? A. No.

Q. And so long as these three corners hold that triangle must be absolutely rigid, must it not, in the plane of the triangle, and in the Cooling Tower Company plants that you erected at Martinez you have four of these triangles arranged at right angles, haven't you?

A. I do not understand the question.

Q. Triangles at each side and on each end?

A. We have a great many triangles, yes.

(Testimony of Carl F. Braun.)

Q. But they are arranged in each direction?

A. Yes, they are arranged in three directions.

Q. And the series of triangles arranged on each of the four sides of the tower are tied and bolted together by the louver boards running on all four sides of the tower, are they not?

A. Not securely, no.

Q. But they are bolted to those diagonal or inclined louver supports?

A. They are bolted in loose slotted holes.

Q. Is every one of the holes loose?

A. I will examine the drawings to see whether these holes are shown. [271—135]

Q. Referring to these specifications which you are now examining, do you not find that these louver boards are clamped firmly to the louver supports?

A. No. These clamps shown on these specifications are erecting clamps to hold the members together while they are being toe-nailed together; they are removed after that. The bolt holes do not seem to be shown. My memory is that they are bolted in loose slotted holes. These clamps are temporary clamps which are removed after the tower is erected.

Q. The intention of the erector is to have these louver boards firmly secured to the inclined members, is it not?

A. So that the louver boards would not be blown off.

Q. And so that there would be no play between them?

(Testimony of Carl F. Braun.)

A. I should say that they should be reasonably tight.

Mr. FOULDS.—That is all.

Redirect Examination.

Mr. TOWNSEND.—Q. Mr. Braun, you were asked a question in regard to the triangles which I understand are external to the main frame.

A. They are attached to the columns and have no connection with the main frame, whatever; they are light and they are attached in exactly the same manner as a shelf bracket to a wall, or a fire escape to a building, and add absolutely nothing to the structural strength of the tower.

Mr. TOWNSEND.—Do you wish Mr. Shattuck to be recalled to the stand for further cross-examination?

Mr. FOULDS.—Not unless you want to examine him.

Mr. TOWER.—I will proceed with Mr. Braun on another topic, then.

Q. Referring a moment to the Shell job and your coming in contact with the Mitchell-Tappen Company, will you state whether or not you had any correspondence with any other concern in regard to the Shell job before you heard or knew anything of the [272—136] Mitchell-Tappen Co.'s connection with it, or correspondence with the Shell Company?

A. I was first apprised of the Shell Company's need for a cooling tower through a letter from the Alberger Pump & Condenser Company, or the Alberger Condenser Company—the name has been

(Testimony of Carl F. Braun.)

changed, and I don't remember when the name was changed—the Shell Company sent an inquiry to the Alberger Pump & Condenser Company, and the Alberger Pump & Condenser Company mailed the original, I believe, of this letter to us with a letter of their own, in which they told us—

Q. (Intg.) Do not state the contents of this letter. I will just show you the letter and ask you if that is the letter of the Alberger Company and the attached memorandum that you refer to?

A. These are the two letters that I refer to.

Q. You received these in the ordinary course of business?

A. I received these in the ordinary course of business. The letter from the Shell Company to the Alberger Pump & Condenser Company is the original and not a copy, and bears the signature of the purchasing agent of the Shell Company.

Mr. TOWNSEND.—I would offer this Alberger letter in evidence, with the attached Shell letter, as Defendant's Exhibit "RR."

(The document was marked Defendant's Exhibit "RR.")

Q. Had you made any investigation at that time in regard to cooling tower structures—had you inquired of other manufacturers of cooling towers?

A. Yes, I had made considerable investigation.

Q. What company besides the Alberger Company and the Cooling Tower Company had you been in correspondence with?

A. I remember particularly the Stocker Company;

(Testimony of Carl F. Braun.)

I believe [273—137] there were others; I am unable to recollect their names.

Q. I show you a catalog of the Stoker Cooling Tower, Catalog No. 3, copyrighted 1909 by George J. Stoker, St. Louis, Mo., and ask you if that is the catalog and if you know anything about how long you have had it?

A. I received this Stoker catalog in response to my inquiry to Stoker for a cooling tower to fulfill the requirements of the specifications of the Shell Company. I received it approximately April, 1915.

Mr. TOWNSEND.—I offer this catalog in evidence as Defendant's Exhibit "SS."

(The document was marked Defendant's Exhibit "SS.")

The WITNESS.—That is the year in which the Shell Company towers were built.

Q. Following the correspondence between Mr. Foulds and myself in the summer of 1918, did you come in contact with or hear further from the Cooling Tower Company in respect to matters taken up in that correspondence?

A. Not for a long period of time.

Q. What length of time?

A. I believe that was early in 1922 that my attention was called by several of our customers to the fact that Mr. Fleming—

Mr. FOULDS.—I object to conversations with his customers.

The COURT.—Yes, that would not be admissi-

(Testimony of Carl F. Braun.)

ble. I don't see on what theory that would be admissible at all.

Mr. TOWNSEND.—I do not believe that the conversations would be admissible, but I think complaints in general from his customers would be permissible to testify to.

The COURT.—It depends upon the nature of the complaints. You mean complaints that they were being interfered with by the plaintiff, something of that sort? [274—138]

Mr. TOWNSEND.—It would have to be along that line to be admissible.

The COURT.—That is not admissible, his statement of that. It would be pure hearsay. The objection is sustained.

Mr. TOWNSEND.—Might I ask this question and see if it comes within your Honor's ruling: Did you have complaints from your customers as to activities of the Cooling Tower Company?

Mr. FOULDS.—I object to that question.

The COURT.—The objection is sustained.

Mr. TOWNSEND.—Do you know whether you lost your business by reason of the Cooling Tower Company's interference with your business?

Mr. FOULDS.—I object to that question.

The COURT.—Well, I presume, Mr. Townsend, you are expecting to follow that by evidence as to what that interference consisted of. That is, you are, of course, putting the cart before the horse. It is all right if you expect to follow it up, but you cannot establish your case by showing that the de-

(Testimony of Carl F. Braun.)

defendant lost business or failed to get business for some reason assigned by the customer as being interference by the plaintiff, unless you can show there was such interference.

Mr. TOWNSEND.—I appreciate the connecting link that you refer to would be the calling of the customer to testify he had approached him on the subject.

The COURT.—Yes.

Mr. TOWNSEND.—I have been under the impression that in regard to loss of business, the reason assigned for that loss of business was permissible and not within the hearsay rule.

The COURT.—I cannot see how that could be. Supposing I would go to you and say, “Mr. Townsend, I cannot buy your tower, [275—139] because Mr. Foulds told me that your patent is no good, and I will be infringing.” Well, unquestionably, that interference, if it were not justified, would form the basis for a cause of action for damages for loss of sales, but if I merely told you, that is not evidence of the fact. It would be my statement in regard to the fact.

Mr. TOWNSEND.—We have set up a counterclaim in regard to these matters, and I was under the impression we would show the loss of sales and interference with our business, and then it would be incumbent for the plaintiff to show that such was not the case.

The COURT.—That would be all very well, but that isn't what you are offering. You are offering

(Testimony of Carl F. Braun.)

to show now a loss of business which the customer said was due to the action of the plaintiff. Now, unless you can show the action of the plaintiff, the customer's statement would not amount to anything, it would be purely hearsay. If you intend to show as a fact that this business was lost because plaintiff interfered with someone, I will, of course, admit evidence of the loss of business, but if all you expect to show is that the customer said that was the reason, I cannot permit it at all; it would be hearsay.

Mr. TOWNSEND.—It will be impracticable to bring customers from a distance in that matter, and it is a matter on which we have no better evidence to offer at the present time than what I am offering now, so we will not press the matter.

The COURT.—I will sustain the objection.

Mr. TOWNSEND.—Q. Have the annoyances that you complain of arising in 1922 abated in any degree since my letter to Mr. Fleming, which is in evidence, written last October, 1922? [276—140]

A. Yes.

Mr. FOULDS.—I object to the question on the ground that I understand that is along the same lines counsel said he would not press.

The COURT.—No; he apparently knows about it himself. I would think, Mr. Foulds, that if counsel for the defendant wrote a letter to a man who was selling your towers in this territory and that was followed with a communication that that had been sent on to your company, that that would be suffi-

(Testimony of Carl F. Braun.)

cient to give rise to a reasonable inference that that communication from Mr. Townsend to Mr. Fleming was communicated to your company.

Mr. TOWNSEND.—Perhaps Mr. Foulds will admit that he received my letter.

Mr. FOULDS.—I submit that it is altogether too remote.

The COURT.—It may not be very valuable, but I think that goes to the weight of it.

A. I know of no further interference.

Mr. TOWNSEND.—Q. Has there been a cessation of complaints from customers since that time?

A. Yes.

Mr. FOULDS.—I object to that.

Mr. TOWNSEND.—If your Honor please, before I ask any more questions on this subject of damages, I deem it proper to call the Court's attention to certain admissions appearing in the answer to the counterclaim which go far to establish these matters that we were going to touch upon directly. In other words, your Honor notices in our answer and counterclaim we allege certain unlawful acts, certain acts which we claim were unlawful on the part of the plaintiff, resulting in serious damage and injury to Mr. Braun's company and business. The answer to the counterclaim admits the acts but denies the unlawful [277—141] effect of those acts. In other words, they have attempted to plead a pure legal justification and to state a legal conclusion, which is for the Court to *dray*, in the face of the admissions and the pleadings, and if it is

(Testimony of Carl F. Braun.)

worth while I can call attention to those admissions, so that the questions which I will propound now may be clear, because my question is going to be directed as to whether he has suffered any damage as a result of the admitted acts and declarations of the plaintiff.

The COURT.—I read the answer, Mr. Townsend, and I think I have in mind what you say.

Mr. TOWNSEND.—I want to lay the foundation for that question.

Q. Are you able to state what financial damage, if any, your company has suffered by reason of the admitted acts and representations of plaintiff?

Mr. FOULDS.—I object to that, if your Honor please, as calling for a conclusion.

The COURT.—I don't know. Why is it a conclusion?

Mr. FOULDS.—He does not state any basis for it, but merely asks him if he can state generally the damage resulting from certain admitted acts. I submit that is merely a conclusion of the witness. Let him state the facts, and let the Court form the conclusion. The witness should testify to the facts and not to conclusions.

The COURT.—Suppose he had lost such and such a contract, and such and such a contract had been interfered with, etc., couldn't he state generally the sum and substance of those?

Mr. FOULDS.—I think if the question was directed to some [278—142] specific thing that there might be a different condition. This is call-

(Testimony of Carl F. Braun.)

ing for the witness' conclusion on facts not before the Court.

The COURT.—You can cross-examine him on that. I will allow the question.

A. I can in certain instances estimate the amount of damage sustained by us by reason of the interference with the plaintiff.

Mr. TOWNSEND.—Will you go ahead and tell us?

Mr. FOULDS.—I object to the witness' estimate.

The COURT.—Yes, I think it would have to be something more than an estimate, Mr. Townsend. Wouldn't this matter be one that would be properly addressed to the Master in the event an accounting was ordered?

Mr. TOWNSEND.—That is true, but it must be shown to be in excess of \$5,000.

A. I can state approximately the amount.

Mr. FOULDS.—I object to that.

The COURT.—I will allow it. You may answer.

A. In the case of the Standard Oil Company, we had enjoyed a substantial business with the Standard Oil Company up to the time we were approached by the Standard Oil Company and shown a copy of a letter received by the Standard Oil Company from the plaintiff in this case; we had had not only cooling tower business but other business. Following that time we have never received any substantial business from the Standard Oil Company either in cooling towers or other apparatus, with the possible exception of some very small spare parts which

(Testimony of Carl F. Braun.)

they would be obliged to buy from us, being unable to obtain them from others.

The COURT.—I think that is too indefinite, Mr. Townsend. I cannot see that you could base an action for damages on the [279—143] mere fact that he had ceased to deal with you. I apprehend the letter you refer to is the one set up in the answer. A. Yes, that is one of them.

The COURT.—I think Mr. Braun can testify that he sought the cooling tower business, was refused, and the plaintiff's cooling tower was put up in its business it would be more definite.

Mr. TOWNSEND.—Be as definite as you can in these matters, in view of his Honor's suggestion, Mr. Braun.

A. In the case of the Standard Oil Company, I sought their cooling tower business and other business, and have not been successful in securing it. I could estimate the amount of damage by comparison with the volume of business which we have received from, for instance, the Shell Company, a large oil company operating in California, in one year alone, we received from the Shell Company—

Mr. FOULDS.—If your Honor please, I object to that.

The COURT.—Yes, that is too indefinite entirely. The objection is sustained.

Mr. TOWNSEND.—If you know, what towers, if any, have the Standard Oil Company purchased?

A. The Standard Oil refineries are every difficult

(Testimony of Carl F. Braun.)

of access, and I have no knowledge regarding what they have purchased.

Q. Have you any other instances that you can state with more definiteness where you solicited the tower business and plaintiff's tower was taken instead?

Mr. FOULDS.—I object to that on the ground that the answer expressly denies anything except the Standard Oil letter.

Mr. TOWNSEND.—And the Union Oil letter and acts in general.

Mr. FOULDS.—Oh, no, that is absolutely denied, both in the [280—144] answer and in the testimony. Phillips testified positively that he had not written any letters except what you quote in your answer.

Mr. TOWNSEND.—If it is all of record I won't contradict it, but I do not recall that the allegations were so limited or the denial so specific.

The COURT.—Of course, the denial of it, Mr. Foulds, is not evidence of the fact.

Mr. FOULDS.—I understand that this was based on the admission in the answer, and the answer admitted the writing of the letter that you quoted.

Mr. TOWNSEND.—It goes much further.

Mr. FOULDS.—Oh, *not*. We deny everything except the particular letter that is set out.

Mr. TOWNSEND.—I can call your attention to the bottom of page 2 of the counterclaim, where plaintiff says it admits that it has alleged that the alleged towers of the defendant were simulations

(Testimony of Carl F. Braun.)

of the designs and towers of plaintiff and its predecessor, and it admits that it has, in the course of business, alleged that defendant was infringing certain patent rights of the plaintiff, and it alleges that the statements so made by plaintiff were and are true, and it admits and alleges that various users of cooling towers asserted by the defendant to be its customers were the customers of the plaintiff; it admits that it has threatened to institute suits against users of cooling towers and other devices which infringe the patent rights of the plaintiff; admits that on or about the 1st day of July, 1918, it sent a letter to the Union Oil Company, a fragment of which is substantially quoted in said paragraph, but it denies [281—145] that the said Union Oil Company was a customer of defendant, and prays leave to produce the whole of the said letter before this Court; admits that correspondence has taken place. At the bottom of page 4 it admits that on or about July 11, 1918, it wrote a letter to the Standard Oil Company, a part of which is quoted substantially in the said paragraph, and it denies that any statements contained in the said letter were or are false, malicious or untrue; it admits that no suit was brought at the time, that is, during 1918, for the reason that defendant, though requested so to do, refused to give plaintiff information as to its acts, and plaintiff was unable to obtain the definite information relating thereto. This is argument, and I do not want to go into it now, but it merely bears on the question of wrongful doings,

(Testimony of Carl F. Braun.)

threats of wrongful doings, without knowing what the defendant had done,—

The COURT.—I suppose, Mr. Townsend, that even if you established that a man lost business that he otherwise would have gotten through letters written by plaintiff, it would not establish any cause of action under the settled rule of the State of California. The settled rule of the State of California in *Boyson vs. Thorn* has been even inducing another to break a contract is not actionable. Of course, I know that is usually considered contrary to *Allen vs. Flood*, in the House of Lords, but, so far as this action is to follow the rules laid down in the State of California, there is no question about it.

Mr. TOWNSEND.—If this were an action at law that would be probably true, but I think that the usual course on the equity side would be to follow the broad, equitable principles in the federal jurisdiction. I rather think that would be [282—146] governed by the practice in the federal courts. The American Bar Association is striving to eliminate any distinction between the law side and the equity side of the federal court, when it comes to matters of state practice. There are a number of these allegations that are quite general, and I think that it is incumbent upon us to show some of these specific instances, as well.

The COURT.—The objection at the present time goes to the point, as I understand it, that while in a specific instance the defendant might have lost business, you would have to show that it was due to

(Testimony of Carl F. Braun.)

some act of the plaintiff. I will admit it. Go ahead.

Mr. TOWNSEND.—Q. Have you any specific instance such as that spoken of where you had solicited the business and were unable to get it on the basis represented?

A. I have, in the case of the Union Oil Company of California. The Union Oil Company had been purchasers of our towers, and we quoted the Union Oil Company on another cooling tower, and I was informed by the then superintendent of the gas department of the Union Oil Company—

Mr. FOULDS.—I object to that on the ground that it is hearsay and inadmissible, and conversations with somebody else. It is not claimed we were present at the time.

The COURT.—I cannot see, Mr. Townsend, that the mere statement or excuse of reason given by a prospective customer would be binding upon this plaintiff at all, unless you could show, in addition to that, that plaintiff did something, wrote some letter to the Union Oil Company.

Mr. TOWNSEND.—That is, in fact, admitted to be true.

The COURT.—Is it admitted to be true?
[283—147]

Mr. TOWNSEND.—Yes.

The COURT.—There seems to be a dispute between you.

Mr. TOWNSEND.—I didn't think there was any question but what that letter was written.

(Testimony of Carl F. Braun.)

The COURT.—The Union Oil Company letter is admitted, is it?

Mr. TOWNSEND.—The Union Oil Company and the Standard Oil Company.

The COURT.—Where does that letter occur in your answer?

Mr. TOWNSEND.—Paragraph 17, page 13, and the admission appears in paragraph 5 of page of plaintiff's reply to the counterclaim.

The COURT.—Oh, yes. Is there any question about that, Mr. Foulds?

Mr. FOULDS.—We admit that letter.

Mr. TOWNSEND.—It is in evidence as Exhibit 19. In other words, I think if it is shown that a letter is written to a prospective customer in which it is insisted that the product of this defendant is being constructed in violation of the plaintiff's patent, and the purchaser refuses to deal upon the basis of that, I think that is admissible.

Mr. FOULDS.—Our further objection to this is that the jurisdictional facts are not alleged in this cause of action. This, of course, is simply an action at law. As far as the defendant is concerned there is no equitable ground for relief asked for whatever, and the case stands by itself. The defendant setting up its case does not include the jurisdictional facts, does not allege diversity of citizenship, does not allege the amount involved exclusive of interests and costs is in excess of \$3000. I submit that the court has no [284—148] juris

(Testimony of Carl F. Braun.)

diction of that case under the allegations in the answer.

The COURT.—The rule, it seems to me, is perfectly well settled, that where an action is brought for the infringement of a patent and the *necessity* diversity of citizenship appears from the very complaint itself, that it is unnecessary to allege it in the counterclaim or cross-complaint. It might be probably necessary to allege the jurisdictional amount.

Mr. TOWNSEND.—The jurisdictional amount does appear.

Mr. FOULDS.—The allegation should be that it is \$3000, exclusive of interests and costs.

The COURT.—You would not contend that you would have to allege in so many words that the amount in controversy is in excess of \$3,000, when it is apparent from the face of the cross-complaint it is in excess of \$50,000?

Mr. FOULDS.—The words “exclusive of interests and costs” are not in there.

The COURT.—In any event, I would permit an amendment, but I do not think it is necessary. I overrule the objection.

Mr. FOULDS.—If the cross-complaint were amended, I would want to amend my answer by setting up the statute of limitations. I have assumed that there was no cause of action set forth there.

The COURT.—Was there any motion to strike or other pleadings directed against it?

(Testimony of Carl F. Braun.)

Mr. FOULDS.—No motion was made. I intended to make it at the hearing.

Mr. TOWNSEND.—The rule expressly provides if you desire to test the sufficiency of the defense you must make it at a certain time.

Mr. FOULDS.—I submit the pleadings can be attacked on the [285—149] hearing.

Mr. TOWNSEND.—The jurisdictional facts, we claim, are all set out, and that would be largely a matter of argument.

The COURT.—In your answer to the counterclaim you do not set up the statute of limitations?

Mr. FOULDS.—No, I do not, but if the defendant is permitted to amend the counterclaim, I would.

The COURT.—I do not think the amendment is necessary. In paragraph 16 it is alleged that the amount of lost sales is in excess of \$50,000.

Mr. FOULDS.—Yes.

The COURT.—That is sufficient.

Mr. FOULDS.—I submit that does not comply with the statute, and certainly there is no allegation of diverse citizenship.

The COURT.—No, but I think the rule is well settled—

Mr. FOULDS.—The Court has jurisdiction of a case relating to patents by reason of the statute.

The COURT.—Yes, I know.

Mr. FOULDS.—But the Court would only have jurisdiction of this particular case under the statutory conditions which are not alleged here.

(Testimony of Carl F. Braun.)

The COURT.—No; the trouble with that is, the plaintiff does not rely entirely or alone upon the jurisdiction of this court, but it does allege the diversity of citizenship. It alleges the plaintiff to be a citizen of New York and the defendant a citizen of California. Now, the rule is well settled that where there is a diversity of citizenship alleged in the complaint that it need not be repeated in the cross-complaint where new parties are brought in. The objection is overruled.

Mr. FOULDS.—Exception. [286—150]

A. I was informed by W. R. Cowan, of the Gas Division, that they had purchased a tower upon which we had bid, from the Cooling Tower Company of New York.

The COURT.—Mr. Foulds, under the rules of this court, an amendment setting up the statute of limitations may be permitted. If you desire to set up the statute of limitations I would, of course, permit you to do so.

Mr. FOULDS.—I thank you; I would like to amend my reply by—

The COURT.—Under the practice in this State, all you have to do is to set up in the pleadings the section of the statute on which you rely.

Mr. FOULDS.—I would like to insert in my reply a further defense to the counterclaim that the cause of action did not accrue within four years prior to the commencement of this action.

The COURT.—Does the statute commence to run from the time of the filing of the cross-complaint?

(Testimony of Carl F. Braun.)

Mr. FOULDS.—Filing of the cross-complaint, February 20, 1923.

The COURT.—You can file that afterwards. That is referring to the section of the Code of Civil Procedure No. 343, isn't it?

Mr. FOULDS.—340 and 335 of the Code of Civil Procedure of the State of California.

The COURT.—All right, I will allow it.

A. Mr. Cowan gave me specific reasons for not giving us this contract.

Mr. TOWNSEND.—Q. Did those reasons pertain to any acts or declarations of the plaintiff?

A. They pertained to the [287—151] acts of N. O. Fleming, the representative of the plaintiff.

Mr. FOULDS.—I move to strike out "the representative of the plaintiff," on the ground that Fleming is not the representative of the plaintiff.

The COURT.—He has been connected up here by documents, Mr. Foulds, which were followed by actions, so I think that he is sufficiently connected up with the plaintiff.

Mr. TOWNSEND.—Q. Can you state whether or not the damages you have suffered in consequence of this representation was in excess of \$5000?

Mr. FOULDS.—Object to that as too general.

A. Greatly.

The COURT.—Yes, I think that is too general. I will sustain the objection. A statement of that kind does not help much. I think he ought to state about what the amount of his damage is.

(Testimony of Carl F. Braun.)

Mr. TOWNSEND.—Q. Are you able to state the value of the tower or towers that you would otherwise reasonably have expected to sell the Union Oil Company?

Mr. FOULDS.—I object to that; that is altogether too indefinite.

Mr. TOWNSEND.—He knows what his bids were, and what other towers were put up.

The COURT.—Yes, I think that is all right. I will overrule it. You may answer.

A. I know of two towers sold by the Cooling Tower Company of New York to the Union Oil Company, which, I believe, had the Union Oil Company ordered our towers, would have amounted to about \$15,000.

The COURT.—For both? [288—152]

A. The two together.

Mr. FOULDS.—I move to strike out the answer on the ground there is no proper basis for it.

The COURT.—I do not know why not. What is your point?

Mr. FOULDS.—He says that assuming that he had gotten the order and assuming that certain things might have taken place, the approximate cost would be \$15,000. There are many other things to be considered. It is a mere guess. There is no foundation laid for any such proof.

The COURT.—Yes, but he testified to more than that. He says that the Union Oil Company people told him the reason they did not give him this business was because of the action of Mr. Fleming.

(Testimony of Carl F. Braun.)

The fair inference from that testimony would be that it was along the line of the letter.

Mr. FOULDS.—The letter that we wrote was in 1918; this was something that happened five years later.

The COURT.—Was this this year?

A. No, this was, I estimate, two years ago.

The COURT.—I will overrule the objection.

Mr. TOWNSEND.—Q. That occurred within the last two years, you say? A. Yes.

Q. What was your loss, as near as you can estimate it, on the failure to sell towers valued at \$15,000.

Mr. FOULDS.—The same objection.

The COURT.—The same ruling.

A. \$4,000—in excess of \$4,000.

Q. Now, have there been any other towers that you have failed to secure that you know of?

A. Yes, several.

Q. Under similar circumstances? A. Yes.

Q. Please state the names of those places, or companies, and state the value involved. [289—153]

Mr. FOULDS.—I object to that on the ground that it is certainly altogether too indefinite.

The COURT.—It is altogether too indefinite, Mr. Townsend, unless you can show in some way that the plaintiff influenced these other persons. With the Union Oil Company I think you tied it up definitely enough, that is, subject to the proposition as to whether or not this Court is going to follow *Boyson vs. Thorne* or *Allen vs. Flood*; but

(Testimony of Carl F. Braun.)

in any event you have to show that the plaintiff exercised a sort of influence upon the person that he is now about to name.

Mr. TOWNSEND.—I think that is correct, and that he can show that either by seeing letters, perhaps—I don't know whether he saw them or not—or by some evidentiary matter emanating from Mr. Fleming.

The COURT.—Yes, if you can show that, all right. Now, answer that question. Have you ever seen any letters or evidentiary matter emanating from the plaintiff, from Mr. Fleming, affecting your answer?

A. I have seen no correspondence.

Q. In those cases you have in mind, you would be dependent upon the reasons given you by the customer? A. Yes.

Mr. TOWNSEND.—Does your Honor believe that is not admissible?

The COURT.—No, I do not think that is admissible at all, Mr. Townsend. I think that is pure hearsay.

Mr. TOWNSEND.—I want to keep away from that.

Q. Mr. Braun, in the manufacture of your towers and the sale of them state whether or not it has been your custom to put the date of one or the other of the two patents in suit upon your towers?

A. We have at all times put name-plates on our [290—154] towers, metal name-plates, enamel-covered, bearing the name of the company, the

(Testimony of Carl F. Braun.)

title, "Braun Atmospheric Water Cooling Tower," or "Atmospheric Cooling Tower," and the dates of all patents which we had on cooling towers at the time when the name-plates were attached to the various towers. Furthermore, the words, "Other patents pending," and the address of the company.

Q. Are you able to say that this plate put upon towers since the issuance of the second of the patents in suit has contained the date of that patent, as well as the other patent in suit?

A. It contained the date of the second patent. When the new patent was issued the previous plates were destroyed.

Mr. TOWNSEND.—That is all.

Recross-examination.

Mr. FOULDS.—Q. Have you a copy of that plate that you put on in January of this year, containing the date of this present patent?

A. I have not available here.

Q. How many towers did you put that last plate on? A. Probably 50 towers.

Q. When did you first put the plate on?

A. I believe that the plate bearing two patents was installed in the first tower we built after the issuance of the second patent.

Q. When was that? A. That is of record.

Q. I do not refer to the date of the patent; I refer to the date of the tower.

A. We had towers almost continuously in course of erection. It would be a very short period after the issuance of the patent.

(Testimony of Carl F. Braun.)

Q. You don't remember what tower it was that it was first put on?

A. Not absolutely. I think I would be safe in saying not over three weeks after the issuance of the patent. [291—155]

Q. You think before the end of February of this year?

A. I don't remember the date of issuance of the patent.

Q. It was in January. A. I think so.

Q. You think it was before the end of February?

A. I think so.

Q. You cannot tell the particular one?

A. Not without looking up our records; we built a great many towers.

Q. Prior to that patent you had merely said, "Patents pending," hadn't you?

A. No, we gave the date of the first patent, other patents pending.

Q. On the Shell tower over at Martinez you merely say "Patent Pending," don't you?

A. I don't know what the plate on the Shell tower says.

Q. What was the date of this conversation with some representative of the Union Oil Company, which you have testified to, within the last two years. Can you fix any more definitely than that?

A. No more definitely.

Q. How definitely can you fix it?

A. I would put it at between one year and two

(Testimony of Carl F. Braun.)

years, because I think it was about at least a year past, and it might be two years past.

Q. Can't you fix it in any way more definitely than that? A. No.

Q. Can you fix the place?

A. Yes, the office of the Union Oil Company.

Q. Where?

A. In the office of W. R. Cowan, in the then named Union Oil Building, Los Angeles.

Q. Do you know whether Mr. Fleming was selling cooling towers at that time?

A. Mr. Cowan informed me that he was.

Q. That is all that you know about his connection with it?

A. And what other people told me, and by the fact that I saw a cooling tower with his name on it.

Q. You don't know whether that was before or afterward? [292—156]

A. Before or after what?

Q. After this talk?

A. Not very well, it is a long time ago.

Q. It made no particular impression on you?

A. Seeing the literature with Mr. Fleming's name on made an impression on me, but to say the exact date when I saw the literature, I could not say.

Q. You knew that you were going to testify about the Union Oil interview to-day, didn't you?

A. No, I did not know that I was going to testify to that.

(Testimony of Carl F. Braun.)

Q. You did not know you were going to be asked about that? A. No. -

Q. You have been here on the trial of this case since Tuesday morning, haven't you?

A. I have.

Q. And you cannot give us anything more definite about that date? A. No.

Q. You did not really consider, then, that it was a matter of a great deal of importance, did you?

A. I did not know what matters were going to come up before the Court.

Q. You know that the Cooling Tower Company has very often won out as against you on the merits of its tower, don't you? A. No.

Q. Don't you know that it does a very much larger business than you do?

A. No, I think we do a larger business than they do.

Q. You know that it advertises very much more extensively than you?

A. No, I do not think so.

Q. What territory does your towers cover?

A. They cover the world.

Q. Have you built any outside of the United States?

A. We have sold designs for towers outside of the United States.

Q. Then you sell your designs, in addition to selling towers?

(Testimony of Carl F. Braun.)

A. We did sell our designs in one case. [293—157]

Q. That is the only case in which your design went out of the country?

A. The only one that I remember of.

Q. Then what did you mean by saying throughout the world?

A. Because this particular place that the designs were used was on the other side of the world.

Q. Where? A. Borneo.

Q. The only tower outside of the United States is the one design you sold to Borneo?

A. No, there are other towers.

Q. Outside of the United States?

A. Outside of the United States.

Q. How long ago were they sold?

A. One of them was sold within the last year.

Q. You have only sold one within the last year?

A. We have sold many towers in the last year.

Q. Outside of the United States?

A. One that I think of right now.

Q. Have you ever sold any towers east of the Mississippi River? A. Not that I remember.

Q. What is the farthest east any of your towers is located?

A. The State of Texas, State of Oklahoma.

Q. Nothing east of Oklahoma?

Q. Nothing east of Oklahoma.

Q. Nothing east of that?

A. Not that I think of now, except in the Republic of Mexico.

(Testimony of Carl F. Braun.)

Q. Do you know of any other cooling tower dealers except yourself and the Cooling Tower Company—atmospheric cooling towers?

A. Yes, I do.

Q. Who?

A. Burhorn—I believe it is called the Edwin Burhorn Company.

Q. Does it come in competition with you?

A. I believe Burhorn sold some towers in California; I am not certain. [294—158]

Q. In competition with you?

A. Yes, I believe in competition with us.

Q. And has Hart?

A. Yes, Hart has endeavored to sell towers in California.

Q. And both Hart and Burhorn have won out in competition with you, haven't they, at times?

A. I believe they have in competition with me.

Q. What other cooling tower companies do you know of, atmospheric cooling towers?

A. J. Symon Flour of Los Angeles.

Q. Does he sell in competition with you?

A. Yes, he sells in competition with us.

Q. He wins out sometimes against you?

A. Possibly.

Q. Were any of these other atmospheric cooling towers mentioned in your conversation with the Union Oil Company? A. No.

Q. You don't remember of mentioning any of them? A. No.

(Testimony of Carl F. Braun.)

Q. Just what was the conversation with the man that represented the Union Oil Company?

A. The conversation was that Mr. Fleming had stated that we were selling the Cooling Tower Company's design.

Q. That is all?

A. And that we had infringed their patent, that the Cooling Tower Company intended to sue us, and that he could not see how they could lose.

Q. He could not see how who could lose, Mr. Fleming or the Union Oil Company man?

A. Mr. Cowan, I am saying now what Mr. Cowan of the Union Oil Company said, as I understand it.

Q. The Union Oil Company man said that he could not see how the Cooling Tower Company could lose in the suit against you?

A. The Union Oil man said Mr. Fleming said that Mr. Fleming could not see how the Cooling Tower Company could lose in the suit against us.

Q. What did you say about that? [295—159]

The COURT.—He probably said, "I don't see how they can win."

A. I don't remember what I said.

Mr. FOULDS.—Q. You don't remember what you said? A. No, I don't remember what I said.

Q. You acquiesced in what he said then, did you?

A. No, I did not acquiesce in what he said.

Q. You don't remember making any reply to what he said?

A. I don't remember what I replied, no.

(Testimony of Carl F. Braun.)

Q. The whole thing made a very slight impression upon you?

A. No, it made a very deep impression.

Q. Yet you cannot remember what you said?

A. No, I cannot recollect what I said.

Q. You can only remember this particular thing that he said? A. I can remember what he said.

Q. How long before that had you sold anything to the Union Oil Company?

A. Probably a very few months.

Q. What had you sold then?

A. We sold quite a quantity of heat exchange apparatus, and I believe some cooling towers.

The COURT.—They evidently did not pay any attention to the letter—their action was not the result of this letter at all. A. I don't know.

Q. You actually sold them cooling towers after they wrote this letter?

A. I only know what they told me about it.

The COURT.—I think that is pretty indefinite, Mr. Townsend. It is very apparent from what the witness says that after this letter was written the Union Oil Company bought cooling towers.

Mr. TOWNSEND.—I think the witness should be given an [296—160] opportunity to explain what the effect of the letter was at that time. That letter was written in 1918, and then a period of four years passed.

The COURT.—It was not a period of four years. He says about one to two years ago they refused to take these two towers, and told him what Mr.

(Testimony of Carl F. Braun.)

Fleming had been telling them, but a few months prior to that time would be certainly a year and a half or two years after this letter was written, that the Union Oil Company did buy cooling towers from Mr. Braun.

Mr. TOWNSEND.—I think he should explain whether he stopped selling immediately after the receipt of that letter, or whether there was an interval of a couple of years when he did not sell, and the moment he began to get them as a customer they were annoyed by Mr. Fleming, and then they ceased doing business with him completely. You see, the Union Oil Company, being a very large concern, they might have had various officials there in charge in 1918, and for a couple of years Mr. Braun lost such business completely, and then nothing being done on the part of the plaintiff, and the field apparently being open again, he resumes relations with them, and immediately these relations are broken off by the act of the plaintiff.

The COURT.—I will let him go ahead. I think Mr. Braun should explain this very indefinite testimony.

Mr. FOULDS.—Q. How many cooling towers did you sell to the Union Oil Company since 1918?

A. I believe there were four.

Q. Where?

A. One was at Oleum, one was at Wilmington, and two at Orcutt.

Mr. TOWNSEND.—You can state at the same

(Testimony of Carl F. Braun.)

time when they [297—161] were sold. Perhaps we can save time if you will tell about the time that those were sold.

A. I think that I described them in the order of their sale, but it is very difficult for me to fix definite dates.

Mr. FOULDS.—Q. You know they were after 1918? A. I think that they were after 1918.

Q. They were sold at different times?

A. They were sold at different times.

Q. Running over a period of how long?

A. Probably two years?

Q. When was the last one?

A. Between a year and two years ago.

Q. Do you know whether they have been in the market for cooling towers since?

A. Yes. I testified that Mr. Cowan had advised me regarding that.

Q. Do you know how many different kinds they had? A. Only by what they told me.

Q. That is all you know about it?

A. That is all I know. I have not had occasion to inspect their plant.

Q. Have you seen the tower that was actually erected within the last year or two by the Union Oil Company? A. At a distance.

Q. How far away? A. Possibly 100 yards.

Q. Where?

A. That is what they called the Richfield absorption plant in the hills near Los Angeles.

(Testimony of Carl F. Braun.)

Further Redirect Examination.

Mr. TOWNSEND.—Q. What was the immediate result of the letter of July 1, 1918, written by the Cooling Tower Company to the Union Oil Company? Did you get the business at that time?

Mr. FOULDS.—I object to that as indefinite.

The COURT.—Overruled.

A. I obtained business subsequent to that time, but I do not [298—162] believe at that immediate time that there were towers under consideration, but I am not certain.

Mr. TOWNSEND.—Q. You cannot tell how long a time elapsed before they did any business with you after the writing of that letter of July 1, 1918?

A. I think it was over a year.

Q. Did you continue your negotiations with the company at that time in 1918, or were negotiations broken off as the result of that letter, that is, as to any business they contemplated?

A. I cannot definitely state the effect of that letter at the time.

Q. Then I gather that your complaint has been in regard to the representations of Mr. Fleming—pardon me if I seem to put it in leading form—

The COURT.—All right.

Mr. TOWNSEND.—Q. (Continuing.) —a year or so ago?

A. Yes. The effect of that was very definite to my mind in the immediate loss of business.

Mr. TOWNSEND.—That is all.

Mr. FOULDS.—That is all.

Mr. TOWNSEND.—I want to call your Honor's attention for a moment to an authoritative definition of a spline. I have Knight's Mechanical Dictionary, and I have had a little figure, in connection with the definition, reproduced on a piece of yellow paper here, with also the definition of "spline," as it appears in the Standard Dictionary, and just for the convenience of the record I am going to ask that this paper be marked Defendant's Exhibit "TT."

(The document was marked Defendant's Exhibit "TT.")

Mr. TOWNSEND.—Now, Mr. Foulds has been good enough to [299—163] suggest that perhaps we can shorten up the case materially if he can begin the cross-examination of Mr. Moser at once, if the affidavit of Mr. Moser is received in evidence subject to your Honor's approval.

The COURT.—Yes, it will be agreeable to me.

Mr. TOWNSEND.—With that affidavit are some little models which are identified by Mr. Moser as Moser Model A, Moser Model B, Moser Model C; Moser Model A being typical of the so-called Hart cooling tower construction, and analogous, very close to the plaintiff's; B being more closely akin to the plaintiff's, where the single bolts secure the parts together, and Moser Model C indicating the plaintiff's structure. The court will observe by manipulation the structural differences, I think. Mr. Charles Moser is submitted for your cross-examination, if you desire, Mr. Foulds.

Mr. FOULDS.—Yes. [300—164]

TESTIMONY OF CHARLES MOSER, FOR DEFENDANT (CROSS-EXAMINATION).

CHARLES MOSER, cross-examination.

Mr. FOULDS.—Q. In your affidavit you state that you are not entirely satisfied with the Hart disclosure: Is that correct? You speak of the very meager and indistinct disclosure.

A. In the cuts in the catalogue the lines are not as they might be.

Q. You have assumed that the decks of Hart were merely on one pivotal point, haven't you?

A. I have assumed them to be as they are shown to be in the drawings in the patent specifications.

Q. Assuming that they are shown in this blue-print rigidly connected by two rivets, so that the deck supports and the vertical supports are rigid, would that change your opinion?

Mr. TOWNSEND.—May we have a little light on the origin of this blue-print? Is it in evidence?

Mr. FOULDS.—It is an illustrative blue-print. For the record, for your benefit, I will say that I was prepared to put Mr. Hart on the stand, and I was waiting for Mr. Duncan to resume the taking of testimony in New York, and I had to come away on this short notice without taking the deposition to prove his structure. These are the blue-prints of Mr. Hart's tower that I received from Mr. Hart, but I am doing this now as illustrative—I am showing this as not proof of the Hart tower, but as illustrative of the interrogatories.

Mr. TOWNSEND.—Unless this blue-print represents the tower which is proven to have been actually erected, prior to the invention of Mr. Braun, it, of course, is manifestly improper.

Mr. FOULDS.—It is just as proper as your models are.

Mr. TOWNSEND.—Let me know what it illustrates. It either illustrates a structure or illustrates what is already shown. [301—165]

Mr. FOULDS.—It purports to illustrate a Hart tower.

Mr. TOWNSEND.—There is no proof of it.

Mr. FOULDS.—I am asking the witness to assume that the Hart tower, which he says is very meager and indistinct in its disclosure, but upon which he bases his conclusions—I am asking him to assume that that Hart tower is made as shown in this illustrative blue-print.

The COURT.—I will permit it.

Mr. TOWNSEND.—May I make one suggestion. There is a Hart patent that was copending substantially with the Hart catalogue and the Hart patent of 1917 is the patent which Mr. Moser has assumed to be the structure attempted to be illustrated in that very poor cut of the Hart Catalogue No. 15.

Mr. FOULDS.—He has gone beyond that.

The COURT.—He says that the Hart, so far as he can tell from the construction in the Hart catalogue, is substantially identical with the patent of Hart of May 29, 1917.

(Testimony of Charles Moser.)

Mr. TOWNSEND.—Yes, that is what I wanted the Court to appreciate.

A. Yes, these lines are indistinct; you cannot see from that drawing that it is; it appears to be, as far as you can make out from this. That is all I can say.

Mr. FOULDS.—That is not my question, Professor.

A. I understand your question perfectly.

A. I object to the form of the question. He is suggesting that I answer something about rigidity, which he specifies here.

The COURT.—That is hardly an answer, assuming what the question embodies.

A. He asks me if it is attached rigidly. It is not attached rigidly.

Q. Assuming that the blue-print shows that it is.
[302—166]

A. If you change your question to ask what I think about the drawing as shown on the blue-print—

Mr. FOULDS.—I want you to answer the question that I am asking, and not your own question.

The COURT.—I think the witness has answered you, Mr. Foulds, saying that your question assumes the blue-print shows a rigid fastening when it does not.

Mr. FOULDS.—Assuming that the horizontal support for the deck and the horizontal support for the top of the louver were rigidly secured to the vertical posts, would that change your opinion?

(Testimony of Charles Moser.)

A. Well, I would have to have some basis for that assumption.

The COURT.—He has a right to ask you what would be the fact if what he assumes is true.

A. Yes.

Mr. FOULDS.—Q. That would change your opinion?

A. That would change my opinion.

Q. Then if you found the horizontal deck support and the adjacent horizontal louver support at the top of the louver rigidly secured in a straight line, you would have the mechanical equivalent of the Braun structure, would you not?

Mr. TOWNSEND.—I object to that. It is for the Court, I think, to determine from the evidence whether it is the mechanical equivalent.

The COURT.—Oh, no. Professor Moser is an expert; he has a right to have an opinion on a thing like that. That is what experts are for.

A. The only way I could answer is, if the connection at the post involving the two pieces you name is equivalent in strength to that of the solid piece, then, of course, it would be identical in its principal. [303—167]

Mr. FOULDS.—Q. Then if a bar is divided and jointed rigidly end to end at a divided point, it is the mechanical equivalent of an undivided bar, isn't it?

A. Can't we use some other word besides rigidly?

Q. I mean unbending connection.

(Testimony of Charles Moser.)

A. An unbending connection, that involves the whole stress situation.

Q. That is what I intended to use.

The COURT.—The lack of rigidity is due to the fact that there is a play on the single fastening as a pivot—that is what it is due to—what you mean is if both of these were fastened rigidly would it be the mechanical equivalent of a continuous piece?

A. It would be a question of degree of rigidity; that is a thing that I rather hung up on there.

Mr. FOULDS.—Q. Then the only distinction which you find between the plaintiff's structure and the defendant's is the degree of rigidity at the post?

A. The vertical post, very pronounced degree.

Q. That is the only mechanical difference you find, isn't it? A. Yes.

Q. You say in your affidavit that these triangles or trusses add no strength whatever to the vertical post: Is that correct?

A. I have not used the word "truss."

Q. No, I used the word truss; what would you call that triangular framework?

A. That is a triangle, it is not a truss, but I would not make such a sweeping remark. This is a local truss.

Q. I refer to the truss-frames there. A. Yes.

Q. Does that truss add anything to the bending strength of the vertical posts?

A. None whatever.

Q. That vertical post would bend just as readily without that as with it? A. Yes. [304—168]

(Testimony of Charles Moser.)

Q. Could you have this supported by these two arms of the triangle and bend just as readily as this?

A. Of course, everything that is placed on there adds some slight degree of rigidity, but substantially those louvers, the triangle there, add nothing to the strength of the post.

Q. Assuming that the bracket is positioned as I am holding it now, with the short arm vertical, would this horizontal arm support no more strength than if the hypotenuse or the inclined arm were absent?

A. Do you refer to this horizontal arm?

Q. I am holding Moser B with the point of the triangle downward, and what you have used as a vertical post horizontal, and I am asking you whether that form does not give strength to the post that is now horizontal?

A. No, it does not.

Q. Then the end of this post now held horizontal would not support any greater weight by reason of the supporting inclined arm: Is that correct?

A. Are you speaking of that, now, as a part of the cooling tower?

Q. No, I am speaking of it as an independent bracket structure.

A. Oh, yes, of course, if that is some other structure, then it will support a greater weight, of course.

Q. Then you did not mean to say that this truss did not add strength to the structure?

(Testimony of Charles Moser.)

A. To which structure, this structure or the cooling tower?

Q. To a structure of that form, whether it is a cooling tower, or a wall bracket.

A. It makes a great deal of difference whether it is a cooling tower or wall bracket; if it is 'a cooling tower, if that timber is in vertical position, then it has nothing to do with the strength. If this is just lying far back, the rest of this way, then that does furnish a prop to that piece if that piece has to function lowest in that direction. [305—169]

Q. Professor, when you say "this" and "that," it means nothing in the record.

A. That is true enough, but I am trying to explain it to you.

Q. I am trying to understand why that truss won't strengthen the post against bending strains.

A. It isn't a truss with respect to the post.

Q. Assuming that I apply a force against the inside of this vertical post, with the truss in position as you have shown it here on this Moser A or Moser B, how does the resisting power of that post, as to bending strain, compare with the resisting power of the post 10 in your Moser C? A. It is less.

Q. How can any bending force applied between these two arms from the inside of the tower be any different in Moser A, or B, or in Moser C? I am assuming now that the force is not applied to the horizontal bar, but to the inside of the post between the two arms. A. At this point, say?

(Testimony of Charles Moser.)

Q. No, between the two arms, right at this point, right there.

A. This post, of course, is merely a unit portion of the structure, and below that would have a reproduction of this structure. Now, if a force is applied here, and this post is free to bend outward, this point must, of necessity, move upward. In the Model B, there is nothing to prevent this point from moving upward if the post will bend out. Of course, the bend is very slight, but it takes a very slight amount of motion to produce a relatively large stress.

Q. You just applied your bending stress below the inclined arm?

A. That is immaterial. The post bends in the same direction, regardless of where the load is applied.

Q. The post will bend at its weakest point, will it not?

A. The post bends throughout its entire length; it cannot bend [306—170] at one point alone.

Q. If there is a weak point in the post, it will bend at that weak point, won't it?

A. Well, the bend will be more pronounced at that point.

Q. And the breaking point in the defendant's construction, assuming that that stress was applied until the tower broke, would naturally come where?

A. Due to what sort of load?

Q. I am talking now of a horizontal pressure against the tower.

(Testimony of Charles Moser.)

The COURT.—On the outside?

A. It would break at the connection of this horizontal member.

Mr. FOULDS.—Q. Horizontal member 11?

A. 11, and post 10, or some of the connection details which give away.

Q. The point natural to break, what appears to be the weakest point, would be the connection between the vertical post 10 and the horizontal post 11: Isn't that correct? A. Yes.

Q. Now, referring to Moser B, in that structure that would not be the pronounced weak point, would it?

A. Yes, that is very much more pronounced; it would add no strength at all at that point.

Q. What I am trying to make clear is that in Moser B the vertical post would yield at the pivotal connection, while in Moser C the post would be held rigid and apt to snap: Isn't that correct?

A. That is correct, if you are assuming now a load which will collapse both structures, or either of them.

Q. I am assuming that a horizontal load or stress is applied to the side of these two towers.

A. That is a working load.

Q. A wind load is the load I think you refer to in your affidavit. A. Yes.

Q. With that horizontal load applied to those two towers, you find a marked breaking point in one, and no marked breaking [307—171] point in the other, don't you? A. Yes.

(Testimony of Charles Moser.)

Q. And the marked breaking point is in the defendant's tower? A. No.

Q. Isn't there a rigid point which will not yield, in the defendant's tower, and a yielding point in the plaintiff's tower?

A. That is true, but the yielding that I am speaking of is collapse.

Q. But in structural work, a member that will yield is less apt to break than a member that is rigid: Isn't that correct?

A. By "a member," now, you refer to a tower, or some particular detail of it?

Q. I refer to a member which will snap and not yield, as compared with a member which will yield, and take for a comparison a rubber post and a glass post.

A. Of course, that all depends upon the amount of load that comes on the structure. If in one case the yielding amounts to collapse of the structure, and in the other case the yielding amounts to stability, then the rigid structure is the more stable of the two; but if it is a question of brittleness as against plasticity under the same load, it seems to me that is another sort of question.

Q. Assuming two towers constructed in accordance with Moser B, the points of connection between the horizontal members and the vertical members being flexible, and a tower constructed as Moser C, with these points being rigid, which of these structures would sustain the greater horizontal or wind stress? A. Moser C.

(Testimony of Charles Moser.)

Q. I am assuming now that the material is of the same inherent strength. A. Moser C.

Q. What is your reason for that?

A. Because the members in that structure are so disposed that they have some structural stability. When I say "stability," I do not mean rigidity or [308—172] brittleness, or anything of that sort. In this case it has very much less structural stability, Moser B, as there is very much less horizontal stability, due to the fact that the connection between the horizontal deck member is insufficient to prevent rotation at its connection with the main vertical post.

Q. In Moser B the horizontal stress would be distributed throughout the entire length of the vertical post, would it not? A. As this stands?

Q. I am assuming a tower made up in accordance with the design.

A. The distribution of the load within the limits of its stability would be practically the same as it is in C.

Q. In C, wouldn't the stress come at the junction between the horizontal bar and the vertical bar?

A. There is stress there, yes.

Q. That would be the point of greatest stress, would it not? A. No.

Q. Are you sure of that?

A. I am sure of that, except that this drilling a hole here through the member 11 at that point makes a point of weakness; other than that, the stress at

(Testimony of Charles Moser.)

the center of this beam is the same as it is at the post.

Q. The whole argument, the whole opinion that you have expressed, is based upon the fact that in two of these exhibits the horizontal bar bends at the vertical post, and the other it does not: Isn't that correct?

A. You would hardly say that horizontal bar bends at the post; the horizontal bar ends at the post would be a better way.

Q. There are two unconnected horizontal bars, a plurality of unconnected horizontal bars in one, and the other is one single horizontal bar? A. Yes.

Q. That is the only distinction you find?

A. Yes. [309—173]

Q. If that horizontal bar was made unyielding, was a continuous horizontal bar joined together by plates or rivets in that form, they would be an identical structure?

A. If they were joined in such a way that the connection would be as strong as the original piece, it would be the identical structure as far as that particular feature is concerned.

Q. Have you read the depositions taken in New York? A. No.

Q. Assuming that in the Hart tower his method of support consisted of extending the members supporting his decks beyond the side post of his tower, and attaching the same to an inclined member which was, in turn, secured at its other end to the deck members below, thus forming a series of triangles

(Testimony of Charles Moser.)

whose third side consisted of his side posts, to these inclined members the louvers, consisting of either metal or wood, were secured by appropriate fastenings, assuming that that was the Hart tower, would you find it the same or the mechanical equivalent of the defendant's tower here?

Mr. TOWNSEND.—We ought to have something in the prior art showing that the structure actually existed.

Mr. FOULDS.—That is in the proofs, and I am going to offer that.

The COURT.—Mr. Foulds says it is in the evidence already.

Mr. TOWNSEND.—That is where we take issue. I have read over the depositions, and it does not show any such.

A. I cannot recall anything in your question by which I could form a definite opinion. There are no dimensions or anything given there by which one could determine what the stress situation would be.

Mr. FOULDS.—Q. You formed an opinion based on the Hart tower? A. As shown in the patent.

Q. You have assumed that the Hart tower showed two separate [310—174] horizontal members?

A. Yes.

Q. Now, assuming that that horizontal member in Hart extended beyond the side posts of his tower and was attached to the louver, is your opinion changed from that expression in your affidavit?

A. There, again, I can form no opinion until I know what the connection between the horizontal

(Testimony of Charles Moser.)

deck member and the post is, and, in turn, the connection between the post and the horizontal louver member.

Q. You made a model here of the Hart construction, didn't you? A. Yes.

Q. That is which? A. A.

Q. Assuming that the horizontal member 13 was extended out into the member which you have marked 22, would you find the mechanical equivalent of the defendant's structure?

The COURT.—Which is 22?

Mr. FOULDS.—This is 13, and this is 22.

The COURT.—I do not understand that question. You mean 13 and 22 are continued?

Mr. FOULDS.—Are one continuous piece.

The COURT.—Then it would be just the same as this, wouldn't it?

Mr. FOULDS.—That is what I want the witness to say.

A. That is a single strip of material in that case?

Q. Yes. A. Yes, that would be.

Q. Then, in preparing that affidavit, did you consider the Coffey patent No. 1,158,107, the structure there shown?

A. If I have, I have referred to it specifically.

Q. I do not see that you mention it at all. Did he refer to this Coffey patent, Mr. Townsend?

Mr. TOWNSEND.—No. [311—175]

Mr. FOULDS.—That is all.

Redirect Examination.

Mr. TOWNSEND.—Q. When on cross-examina-

(Testimony of Charles Moser.)

tion you were asked if the extension beyond the post as a separate piece from the deck member was rigidly attached to the post, and if the post was, in turn, rigidly attached to the deck-supporting member—what are we to understand in regard to the comparison of such two parts, the horizontal piece connected with the post, in comparison with the defendant's structure?

A. If the two-pieced construction here is so made that the connection at the vertical post affords the same strength as a solid piece, then the two structures would be identical so far as that local stress situation would be concerned.

The COURT.—That is to say, if there were no screws in there, instead of two in both the supporting member and this arm of the louver, the two screws would keep the same rigidity subject to any weakness that might develop by virtue of the presence of screws?

A. No, it would be a question of whether the two screws there through the member would afford the same strength at this particular point that the solid piece does.

Q. That would be the only difference?

A. Yes. It is a question of whether the connection there at that point has the same strength to resist bending as this solid piece.

Mr. TOWNSEND.—Q. Then would that involve some consideration beyond the usual one of supporting a louver by an outhanger, as exemplified by Moser Exhibit "A" or "B"?

(Testimony of Charles Moser.)

A. I do not quite get the import of your question.

Q. Does the mere connection of any two members together that way cause the result that is accomplished in the defendant's device, or are there engineering constructions involved, to be considered, [312—176] stresses, loads, etc.?

A. Oh, yes, the loads must all be considered, the type of load that acts on the structure.

Q. Now, in the defendant's device, where you get the cross-members supporting the decks in one piece, and connected in the manner, in practice, as shown by C, can you add anything to what you have said, or to what was said in your affidavit as to the action there, in contrast or comparison with the action where we simply see A or B have the part rigidly connected to the post?

A. I think I have covered that stress situation pretty thoroughly in the affidavit. The horizontal deck members there support a vertical load. Now, in this case—

Q. (Intg.) You mean the horizontal members in C?

A. Well, in either case, that is, the horizontal deck members support a vertical load, in any tower. Now, in B, this deck member amounts to what we call a simple beam, having its maximum bending stress at the center. In Model C we have what is called a restrained beam; that is due to the fact that the horizontal deck member is continuous past the post, and is capable of resisting bending stresses

(Testimony of Charles Moser.)

at the posts. That is true to some extent in any connection; that is, if we would stick this on here or tighten up on this bolt you would have some degree of rigidity, but nothing at all compared to what you would have if the horizontal deck member were continuous. Now, where that is continuous we have a restrained beam, and the stress, if there were equal loads, would be one-half as great in the horizontal member in C as it would in B. With respect to the horizontal load, the stability of the structure, so far as this element is concerned, is determined altogether by the strength of the member as it passes the vertical post—I mean the strength of the horizontal member. In C, the horizontal member [313—177] at the post is capable of withstanding very great bending stresses, because the member passes there unimpaired, except the bolt hole at the center. In B, or in A, the horizontal members are broken at the post, and from an engineering point of view this structure would be unstable.

Q. B?

A. B. It is true that it has some degree of rigidity there; anything that you place against there has some slight rigidity; but with respect to a horizontal wind load which in some of the larger towers might run up to as much as, it might be 100,000 pounds, the structure might be unstable so far as these particular elements are concerned. Now, with respect to rigidity in the direction normal to the

(Testimony of Charles Moser.)

horizontal framing members, I might show what took place there by means of this box.

Mr. TOWNSEND.—I would ask that that be marked Defendant's Exhibit "UU."

(The model was marked Defendant's Exhibit "UU.")

A. If the two sides of the box are in place, then it has a great rigidity with respect to angular deformation, that is, in the direction of the diagonals of this box. If the sides of the box are relieved and merely hinged along the bottom that, in a measure, represents the louver situation in the tower. Now, the tower, then, has no stability, except the louvers would be rigidly attached to the tower; that is, if we had a member passing from tip to tip here of the louvers, some member that was capable of resisting bending stresses, then we might have some slight degree of rigidity; that is a little far afield in engineering practice, but whatever rigidity the louvers might contribute would be made possible by a member passing from tip to tip of the louvers that was capable of resisting bending [314—178] stresses; it would not add to it to merely tie the louver into this point, to the corner of this tower with the hope that would rotate at the corner of the tower. However, I repeat again, from an engineering point of view that would be a rather unstable sort of bracing.

Q. Now, referring a moment again to your Model C, representative of the defendant's structure, and

(Testimony of Charles Moser.)

your model B, representative of the plaintiff's structure, will you state whether or not the restrained beam action and construction of Model B is the same or different from the simple beam and louver extensions of Exhibit "B"?

A. No, it is not the same.

Q. Those are mechanically distinct and recognized differences mechanically—principles?

A. Yes.

Mr. TOWNSEND.—That is all.

Recross-examination.

Mr. FOULDS.—Q. You have assumed, Professor, that there is no end bracing on this tower, haven't you?

A. I have assumed that whatever bracing there is is similar to what is represented by these models.

Q. And if your prune box, Model UU, were braced at each end, it would be firm and rigid, would it not?

A. Well, of course, if anything is braced it is firm and rigid, but it is a question as to the nature of the bracing. If it is braced by any means shown in the prune box or B, or A, then it will be rigid.

Q. Do you mean to say that if a member of those triangular trusses were arranged on a one-piece vertical beam with the sides and ends of a rectangular structure and they were crossed-braced, as shown in the plaintiff's device, there would not be sufficient strength for all practical purposes?

A. May I see the plaintiff's device? [315—179]

Q. Haven't you seen it?

(Testimony of Charles Moser.)

A. I have seen illustrations of it in the patent.

Q. Aren't you familiar with the plaintiff's device?

Mr. TOWNSEND.—Show him the blue-print.

Mr. FOULDS.—Q. Aren't you familiar with the plaintiff's device? A. I am.

Mr. TOWNSEND.—What do you refer to? Do you want the blue-prints that you have in evidence, or do you want the Model G, which has been offered for illustrative purposes?

Mr. FOULDS.—Q. Are you familiar with the plaintiff's device?

A. You let me see the plaintiff's device and I will tell you.

Q. You testified about it in your affidavit, didn't you?

A. I do not want to commit myself to something here that is not shown to me.

Q. Haven't you attempted to testify about the plaintiff's device in your affidavit?

A. I have assumed that the Hart tower represents the plaintiff's device in all its essential features.

Q. Assuming that the tower was made up with the structural truss frames, and had the louver supports as illustrated in this Coffey patent, 1,158,107, wouldn't you find sufficient strength for all practical purposes?

A. Will you refer to some particular figure here?

Q. You may refer to Fig. 3, which shows the inclined louver support, vertical posts at each side,

(Testimony of Charles Moser.)

horizontal members extending from the horizontal decks to the ends of the louvers and shown in detail in Fig. 4 above—the plan view being shown in Fig. 1.

A. Fig. 3 is unstable against lateral loads.

Q. You are assuming that that is constructed, that figure, on all sides as shown in Fig. 1?

A. Yes.

Q. What is your reason for that?

A. The reason for that is the [316—180] same as is shown in either Models A or B.

The COURT.—I think he has made that very plain, what his theory with regard to it is. He has said the fact that it has a rotation there.

Mr. FOULDS.—Rotation at the post? A. Yes.

Q. Have you ever seen any cooling towers in this vicinity? A. Not to my knowledge.

Q. You never heard of one blown down?

A. I don't recall of ever hearing of one blown down.

Q. In steel skeleton construction, the horizontal beams are ordinarily joined at their ends to vertical posts? A. Yes.

Q. While in wooden construction, the wooden member ordinarily or very often passes the vertical post, doesn't it? A. Yes.

Q. That is a mechanical expedient or difference between steel construction and wood construction?

A. Yes.

Q. When you were comparing a steel tower with a wooden tower, you would naturally expect to find

(Testimony of Charles Moser.)

the horizontal members broken and joined at the vertical posts, wouldn't you?

A. It evidently is very often done, from looking at the drawing.

Q. That difference between steel construction and wood construction is a satisfactory engineering solution of the problem?

A. Of which problem?

Q. Of the problem of joining vertical and horizontal frame members.

A. Well, you would have to know what the particular structure was.

Q. Assuming a building of steel skeleton construction, in which there are vertical members and horizontal members, the vertical members acting as supports for the horizontal members would be naturally brought to the vertical members and there joined to the vertical members on each side?

A. Yes.

Q. And that would be the natural way of supporting steel skeleton [317—181] frames, wouldn't it? A. Yes.

Q. With wooden construction, we frequently find the horizontal beams carried past vertical beams and secured to the vertical beams by some mortise joint or some such construction? A. Yes.

Mr. TOWNSEND.—I have just one more question to ask Mr. Braun.

TESTIMONY OF C. F. BRAUN, FOR DEFENDANT (RECALLED).

C. F. BRAUN, recalled for defendant.

Mr. TOWNSEND.—Q. Mr. Braun, will you please outline the development of the subject matter that Mr. Moser just has spoken of, and represented by your second patent in suit, which issued January, 1923, and which was filed in April, 1920?

A. We observed that most all atmospheric cooling towers which came within our experience seemed weak structurally; we noticed this on the Shell towers at Martinez, which were, as a matter of fact, later condemned, and some of the parties deteriorated had to be torn down for fear they would fall down, and we built a number of towers in accordance with the drawings shown on the first Braun patent; these towers lacked the desired stability. In an endeavor to overcome this, we undertook the design of the existing Braun type of tower, and extension of the deck-supporting members so as to support the louvers and form a continuous beam, and a triangular truss between this horizontal beam and the vertical beam was a result of this effort to increase the stability of the atmospheric type of cooling tower.

Q. When did that work begin, the design of that?

A. That work began rather late in 1918 or early in 1919.

Q. Just outline the progress of it.

A. This work was started [318—182] by me,

(Testimony of C. F. Braun.)

assisted by Mr. Houghton, and was later taken up by Mr. Shattuck, who had been in the service, on his return from the service.

Q. Had you developed the general principles of it prior to Mr. Shattuck's return from the service?

A. Yes, and Mr. Shattuck carried out the details of the design; the principles were developed prior to the time that he took the work up.

Q. Do you recall how soon after that you had embodied these principles in an actual tower?

A. We built in 1919 the first towers of the new type.

Q. Can you fix the time more definitely in 1919 when such towers were built?

A. The first tower was built very shortly after Mr. Shattuck's return, I don't exactly remember when he returned.

The COURT.—He gave us the date.

Mr. TOWNSEND.—Yes, he said he returned in March, 1919, is my recollection. Is that your recollection, your Honor?

The COURT.—Yes.

Mr. TOWNSEND.—Q. With that date, are you able to fix with any more definiteness when you erected the first tower? You said very shortly. Was it a week or ten days, or a month, or two months?

A. I think that we began work on the fabrication of a tower of this type within about a month after he returned.

(Testimony of Carl F. Braun.)

Mr. TOWNSEND.—That is all.

Cross-examination.

Mr. FOULDS.—Q. Are you making towers of steel as well as wood?

A. Not at the present time.

Q. You abandoned steel entirely?

A. We might make steel towers if there was demand for them. We do not think that they are as good as wooden towers. [319—183]

Q. The change to this continuous member was made when you changed from wood to steel, was it not?

A. No. The cooling tower shown in the first Braun patent is, I believe, shown as made entirely of steel.

Q. Did you extend your horizontal beam members of steel beyond the vertical posts to the louvers?

A. In that design the horizontal members did not extend.

Q. That was because it was steel, was it not?

A. No, it was not because it was steel.

Q. In steel construction, you do not pass a vertical support with the horizontal steel member, do you?

A. Frequently they pass the support.

Q. Where do you know of such a thing?

A. I know beams on our building that are 60 feet long that are supported every 20 feet.

Q. That would be, of course, for floor supports, or something of that kind?

(Testimony of Carl F. Braun.)

A. No, it would be a beam to carry a load.

Q. In a construction such as this tower, you would naturally use one piece when you would make it all lumber, and two pieces when making it of steel, as an engineering problem, wouldn't you?

A. No, we do not. We built the Braun tower as shown in the first Braun patent largely of wood and terminated the transverse wood members at the vertical members.

Q. Is that shown in your patent?

A. No, that is not shown in the patent; the patent is all steel, but the patent calls for the use of other materials than steel.

Q. Did you make a wood tower, that is, the horizontal support as well as the vertical support of wood before this construction you have spoken of?

A. I think that they were all made with a single steel bracket. That could as well have been *made* [320—184]

Q. You spoke of the Shell tower deteriorating; that was because of the rust, was it not, the kind of water used?

A. It was because of rust and corrosion.

Q. Not because of any structural defect?

A. A comparatively small amount of structural deterioration of the structural members made the tower unsuitable for further use, and the plant was dangerous.

Q. That is a particularly difficult water to handle

(Testimony of Carl F. Braun.)

in metal towers, isn't it, the water over at the Shell plant?

A. I consider that all waters are difficult to handle in towers.

Q. That isn't pure water at the Shell plant?

A. Practically no water pumped over cooling towers is pure; in fact, the very nature of its use causes a concentration of the water; as the water is recirculated over a tower a portion of it is condensed, evaporated, and the customers very seldom renew the water frequently, with the result that the salt in the water concentrates.

Q. Do you know of any other steel tower where the steel rusted and deteriorated to the extent that it did in the Shell tower?

A. Yes. I know that the tower that we built with steel brackets deteriorated very rapidly.

Q. But those were two isolated cases, weren't they? A. No.

Q. It is not a customary thing?

Q. Yes, it is a customary thing.

Q. That has been your experience with your tower?

A. It has been our experience with all steel towers, both of the atmospheric type and the closed type.

Mr. FOULDS.—That is all.

Mr. TOWNSEND.—Defendant rests.

Mr. FOULDS.—I want to offer the depositions taken in New York, which are here. [321—185]

The COURT.—The depositions will be admitted.

(Testimony of Carl F. Braun.)

(An adjournment was here taken until Tuesday, December 4, 1923, at ten o'clock A. M.) [322—186]

Tuesday, December 4, 1923.

Mr. TOWNSEND.—If your Honor please, in the hurry of closing the other day there were a couple of questions I should have asked Mr. Braun, and with your Honor's permission I would like to recall Mr. Braun for a few minutes.

The COURT.—Very well.

C. F. BRAUN, recalled for defendant.

Mr. TOWNSEND.—Q. Mr. Braun, are you familiar with the Pasadena Ice construction?

A. Yes, I am familiar with it.

Q. Did you see it during its erection?

A. I saw it during its erection.

Q. During what period of time?

A. January, February and March.

Q. Did you see it more than once?

A. Many times.

Q. How frequently? -

A. Several times a week I passed there going home.

Q. That would include the time between January 16, 1923, when the patent issued, would it, and the time when the counterclaim was filed on February 20, 1923? A. Yes.

Q. Now, did you examine the structure with particularity? A. Yes.

Q. Will you just briefly describe the structure in so far as it relates to the deck-supporting members, and the louver-supporting members?

(Testimony of Carl F. Braun.)

A. The structure is very similar to the second Braun patent. The deck supports extend beyond the posts and receive the louver boards, in a manner exactly similar to that shown on the model Exhibit "D."

Q. Do these cross-members appear in the photographs before you, of which there are six of the Pasadena Ice Company?

A. Yes, they appear in all six photographs. [323—187]

Q. And the louvers and their supporting connections, are they sufficiently clear for ordinary understanding?

A. Yes. One photograph shows the supporting connection with the louver board, and the other photographs show the supporting connections with the louver boards laid in place.

Q. Will you state whether there is any difference in construction and mode of operation over that shown in your construction and embodied in Exhibit "D"?

A. None as regards the frame decks and louver supports. There is a slight difference in the distributing system at the top of the tower; there is no redistributing deck on top.

Mr. TOWNSEND.—I think Mr. Braun wants to add a word or two in regard to the assumption that has been made if there was an extension beyond the vertical post to the louvers in line or approximate line with the deck, and if certain things took place would certain things be equivalent.

(Testimony of Carl F. Braun.)

Q. Now, in the matter of practice, Mr. Braun, can you tell us what you have found in practice in regard to the construction you have described just now in connection with your own tower represented by Exhibit "D" and the recent construction represented by the Pasadena Ice Company, particularly as to whether or not there would be any difference by merely supporting the louvers by wood or metal extensions, separate from the floor beams, and connected by one or two or a dozen bolts to the vertical supports?

A. The previous towers, with which I am familiar, including the Mitchell-Tappen cooling towers constructed at the Shell refinery at Martinez, and including the towers shown on the first Braun patent, have wooden deck-supporting members terminating at the column.

Q. Pardon me, do you mean that the Shell arrangement at Martinez [324—188] had wooden deck supporting-members? A. Yes.

Q. Supported on the steel frame?

A. Supported on the steel posts, and terminating at these posts, and not extending beyond the posts.

Q. Were they bolted on? A. They were bolted.

Q. With a single bolt? A. With a single bolt.

Q. How is the supporting member for the louver fastened to the steel frame?

A. The supporting member for the louver really consisted of two angles, and each of those angles was riveted by a single rivet to vertical posts. In those structures the louvers added no structural

(Testimony of Carl F. Braun.)

strength to the tower, and did not in any way assist in the support of either the vertical components of the wind load or the horizontal components of the wind load. In a structure such as shown by Exhibit "D," having the members extending beyond the vertical columns and supporting the louvers, making use of the louvers as structural members, it is interesting to note that in the tower shown by Exhibit "D" approximately 38 per cent of the material in the tower is in the louvers.

Q. Is that true of towers generally?

A. That is true generally of this type of tower.

The COURT.—What proportion of that is in the panel?

A. Looking at it, I would say possibly 35 per cent would be in the board, and perhaps 3 per cent in the members at the end of the board. That 38 per cent does not include the projection of the deck members, but only the louver panel. Really, the entire 38 per cent would be in the panel, and is differentiated say 35 per cent in the boards and possibly 3 or 4 per cent in the end members of the panel. So that here is a large amount of material in the tower which heretofore has not [325—189] been used for structural strength, although one of the big factors in cooler design is structural strength. Even if the horizontal part of the louver bracket were in direct alignment with the deck member, and even if it were secured to the vertical posts by more than one bolt or one rivet, and

(Testimony of Carl F. Braun.)

even if it were of the same size or same strength as the horizontal deck-supporting member, it still would not measurably approach the strength of a continuous beam. To splice a beam is a very difficult detail, involving a great number of rivets, bolts, or nails, as the case may be, and considerable extraneous material in order to splice plates in steel beams and cleats in wooden beams, and, even so, it is very difficult to approach with a splice or joint the strength of the original beam and such splice, even where made elaborately, seldom exceeds 75 per cent of what the strength would be of a continuous solid beam.

Mr. TOWNSEND.—Q. That also involves the supposition, does it not, of equality of strength of the two parts to be joined?

A. I include that in my description. I am quite certain that if the two members to be joined were of equal strength, and as Mr. Foulds has attempted to show that it is not usual to terminate wooden members at the vertical supports, I wish particularly to call attention to the fact that wooden members are terminated actually at the vertical supports, as is shown clearly by two exhibits on file in this case, namely, the drawing of the Mitchell-Tappen towers, at the Shell Company, and the first Braun patent.

Q. Is there any substantial difference in the metal construction or wood construction as between the meeting of vertical and horizontal members?

(Testimony of Carl F. Braun.)

A. There is absolutely no essential [326—190] or inherent difference in that regard. If a load is to be carried extraneously on a cantilever beam, that is, by a beam extending past the column, the solid beam would be likely to be extended in exactly the same manner with wood as with steel.

Q. There is not any inherent difference between the steel and wood in that respect?

A. There is no inherent difference. And referring to my remarks about one or two rivets not being of any great importance, there has not been shown in any of the exhibits, or even in the Hart drawing, which was submitted for the purpose of supposition, a splice, anything that could be called a splice. I believe one drawing submitted as a supposition has two rivets in it, whereas all drawings submitted as evidence had one rivet, but those two rivets cannot in any way be called a structural splice. I do not believe that they would give one-twentieth of the strength of the continuous beam, assuming both members were of equal strength.

Q. In your experience, and from any of the patents or drawings in evidence, has there been any showing anywhere at any time to your knowledge where the extension of whatever sort it has been apparently designed for the purpose and intention of co-operating with the deck member, as stress or load supporting or resisting member?

A. No. I have never seen any such structure. Apparently, louvers have always been considered

(Testimony of Carl F. Braun.)

as an appendage to hang onto the tower, and hold them down. The use of this material for structural purposes had never been recognized.

Mr. TOWNSEND.—I think it is clear to your Honor that my point is that these extensions, whatever they have been, have been merely hangers to support louvers. [327—191]

The COURT.—If that is not clear by this time it never will be. I have heard it often enough.

A. I would like to make one more thing clear, and that is, in a cooling tower there is an additional reason for resisting the number and size of the structural members in the tower, and that is that all structural members offer resistance to wind, and if too many structural members were used in the tower, an insufficient amount of wind would enter the tower and the water might, therefore, be not properly cooled. This, to my mind, is a very important feature in cooling tower design, to so design the tower that there is a comparatively free passage for wind.

Mr. TOWNSEND.—Q. Would you mind just telling the Court what you told me before taking the stand of an experience with one of your towers at the Shell Company, where your metal braces broke?

A. We had a rather remarkable proof of the efficiency of this type of bracing in a tower which we installed for the Shell Company, the third tower which we installed for the Shell Company, on a high hill overlooking Carquinez Straits; this tower

(Testimony of Carl F. Braun.)

had in it some metal tie rods similar to the tie rods in Model D, and the tower was subjected to a very severe gale, and the fastenings of all these tie rods broke, apparently the fastenings were weaker than the tie rods, but the stability of the structure was unchanged. I presume that the breaking of the tie rod fastenings, was due to the slight flexibility in the wooden structure, but the structure was not distorted in any way, and we later replaced these fastenings.

Q. That is the structure which you say embodied the principles of Exhibit "D"?

A. Practically identical to the model.

Mr. TOWNSEND.—That is all. [328—192]

Cross-examination.

Mr. FOULDS.—Q. Is this Pasadena tower that you have referred to one of the composite type that you refer to in your patent?

A. Yes, it is a composite type.

Q. What do you mean by a composite type of tower?

A. There are two meanings for a composite type of tower.

Q. What do you mean in your patent?

A. I may have used the composite in more than one place. If, therefore, you will show me the patent, and show me the specified place that "composite" is used I will endeavor to then state.

Q. You do not recall now?

A. Yes. I think that possibly I have used "composite" in more than one sense. I do not offhand

(Testimony of Carl F. Braun.)

remember exactly where I have used "composite" in the patent. I have at times used "composite" to mean a tower made up of more than one material. I have also used "composite" to mean, and I believe I have used it in the sense of the patent, to mean a tower made up with fabricated sections, to be assembled at the point of erection.

Q. In that sense, was the Pasadena tower a composite tower?

A. To a considerable extent. In looking at the photographs, I see that the louver panels on the end have been removed before being installed.

Q. Do you know whether they were nailed together on the ground and then elevated to a position on the tower?

A. I do not know whether they were nailed together on the ground or elsewhere, but they were nailed together in the panel before they were elevated.

Q. Isn't it the customary way to nail the panels together on the ground and elevate them to the position, rather than to nail the boards in position on the tower?

A. No, I have never seen [329—193] or heard of that being done prior to the time that we did it. It may be of interest to know that the Mitchell-Tappen instructions supplied with the Martinez towers instructed that the louver boards be installed in place.

Q. You find that your louver sags, don't you?

A. What louvers do you refer to?

(Testimony of Carl F. Braun.)

Q. The louvers referred to in the patent.

A. That the louver sagged?

Q. Yes. A. No, not that I remember.

Q. Did you ever construct a tower, as shown in that patent, with posts at the corner only, four posts?

A. Yes, I believe we have constructed square towers.

Q. And you found that if the length of the louver section is excessively great, intermediate boards may be used to secure the various louver boards in position and prevent them from sliding or sagging?

Mr. TOWNSEND.—What patent are you reading from?

Mr. FOULDS.—I am reading from lines 98 to 102 of your patent of January 16, 1923, No. 1,442,784.

A. I think that probably refers to a strip that is sometimes nailed across the louver boards.

The COURT.—In the middle of the panel?

A. In the center of the panel.

Mr. FOULDS.—Then where you use four posts as shown in your patent, you apply a strengthening board across the center of the panel to keep it from sagging, do you?

A. No, if we apply that strip it is to tie the boards together.

Q. When the boards sag they do not give any strength to the tower, do they?

A. Yes, they would give strength to the tower.

(Testimony of Carl F. Braun.)

Q. Even though they sag?

A. Yes, particularly one board may [330—194] warp and the others may not.

Q. Is the theory which you have outlined as to relative strength of an integral to a spliced beam well known to skilled mechanics?

A. No, I think the principles of beams are not known to mechanics. The design of structures and the principles of beams is a branch of civil *engineer*, and requires considerable knowledge.

Q. You don't think that an ordinary skilled mechanic would know that an integral beam was stronger than a spliced beam?

A. No, I don't think that an ordinary mechanic would know whether an integral beam were stronger or not than a properly spliced beam.

Q. Do you think that an ordinary skilled mechanic would know enough to extend a horizontal supporting member as a bracket?

A. Yes, but he would not know enough to extend a horizontal member and use it for giving structural strength.

Q. Does the bracket give structural strength?

A. A bracket appended to a structure ordinarily would not add to the structural strength of the structure, and in the specific case of the cooling tower it does not add to the strength of the structure to any degree.

Q. You never realized, when you applied for this patent, that your so-called extended decks gave any structural strength to the structure, did you?

(Testimony of Carl F. Braun.)

A. Yes, I did.

Q. Why didn't you mention it in your patent at any place?

A. Possibly I did. I do not remember.

Q. Can you refer to any place in your patent where you refer in any way or intimate that any strength would be added to your structure by them?

Mr. TOWNSEND.—The patent is the best evidence of its contents, and also it is well established by law that a patentee [331—195] is entitled to all the considerations and benefits arising from his invention, whether he has mentioned them or not.

A. I will state specifically that the development of the extended beam and making use of the louvers for structural support was the direct outcome of our endeavoring to reduce the number of internal bracing members, which seriously obstruct the entry of the wind to the tower. It was specifically for that purpose.

Mr. FOULDS.—Q. Was not the strengthening feature of your device first suggested to you by Professor Moser after this case was started?

A. No.

Q. Now, this tower that you say broke, was one of your towers?

A. I did not say that the tower broke.

Q. The fastenings of the tower broke, the tie-rods, as you call them?

A. The fastenings of the tie-rods broke, yes.

Q. That was the only one you ever knew to break, was it not?

(Testimony of Carl F. Braun.)

A. The only what I ever knew to break?

Q. Cooling towers.

A. No, I have known of a great many cooling towers to fail.

Q. Have you ever had experience with one?

A. I have read articles concerning it, and I have seen a great many photographs of cooling tower failures. They are very common.

Q. But you have never seen an instance?

A. Yes, I firmly have in my mind that I have seen a cooling tower in a wreck, but I could not place right now where it was.

Q. You cannot tell anything about where it was?

A. No, I cannot place right now where it was.

Q. And, according to your own knowledge in the cooling tower art, the plaintiff's cooling tower with the two sections of the extended decks stands up under every known stress?

A. I know of no plaintiff's tower with extended decks.

Q. Did you have a cooling tower at the Shell refinery at [332—196] Martinez in which the decks were extended by what you call a tie rod to the top edge of the inclined louver?

A. No. The deck members terminated at the vertical posts and the tie rods were on the interior of the tower, and between the posts.

Q. This tower that you erected for the plaintiff at Martinez had a horizontal member bolted to a vertical post, and on the other side there was a piece of metal extended out in approximately the

(Testimony of Carl F. Braun.)

line of the deck to the tops of the louver, wasn't there?

A. There was a small angle connected by one rivet to the vertical column, and by one rivet to the vertical tie member, and this angle was to support the walk-away. It was not an extension of the deck in any sense of the word.

Q. Then you did not have at Martinez a member in the tower which was in effect a continuation of the horizontal member of the deck, or extended from the termination of the horizontal deck member to the top of the louver in a horizontal direction, or approximately so?

A. I answered that question once before, but before I answer it again I would like to look at the drawing again.

Q. Why play with words. Can't you tell me whether you had approximately the structure that I have described?

A. No, we did not have the structure that you have described.

Q. Did you ever know of any of these old cooling towers of the plaintiff to break under stress, of your own knowledge?

A. I know that the two towers at Martinez became so unstable that they were condemned as being dangerous and unsafe.

Q. You mean that the material of the tower rusted?

A. I mean that the material of the tower deteriorated.

(Testimony of Carl F. Braun.)

Q. That was not a structural defect, but was a mere rusting away of the steel, was it not?

A. It was a deterioration of [333—197] the metal in the structure.

Q. But so far as the framework was concerned, the framework held even with that deteriorated condition of the material, didn't it?

A. The framework was condemned as being unsafe to withstand any unusual condition such as wind.

Q. Because it had rusted away?

A. Because there was insufficient strength in the structure.

Q. You mean that because it had rusted away that there was insufficient strength remaining?

A. The tower had not rusted away.

Q. Parts of the tower had rusted, hadn't they?

A. The tower had deteriorated, some of the members had rusted.

Q. That was the sole reason for the deterioration, as you call it?

A. Yes, the rust would be the principal reason.

Q. You have never had any experience, personally, with any tower of the plaintiff which has not stood up under all stresses of climate and weather?

A. I have had no experience with towers of plaintiff, other than the two towers at Martinez.

The COURT.—How long were those towers there at Martinez?

A. They were there about four years.

(Testimony of Carl F. Braun.)

Q. The water that passed through them for cooling purposes was water that had been used for the condensation of distillates? A. Yes.

Q. And therefore had a considerable concentration of salts?

A. All cooling towers waters have concentration of salts, and that is one of the reasons that cooling towers have to be made very strong.

Mr. FOULDS.—That is all.

Mr. TOWNSEND.—That is all. I call attention to the fact that we desire to add claims 5, 6, and 7 of the second patent as infringed. That is our case.

Mr. FOULDS.—That is our case.

[Endorsed]: Filed Mar. 12, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [334—198]

(Title of Court and Cause.)

MEMORANDUM OPINION.

December 6, 1923.

PARTRIDGE, JOHN S. (Orally).

This matter is submitted for final decision.

The matter involved consists of a tower designed for the cooling of liquids. It is used principally for cooling of water which has been used to circulate around condensers of various types, particularly those used for the condensation of gasoline and distillate and for the cooling of water which

has been used for condensation of ammonia in ice plants.

The art is an old one. Cooling towers consisting of a series of decks over which the water flows and exposed to the air, have been in existence for over seventy years. They consist of two types: One is known as the "atmospheric cooling tower," which is involved here; and one is a closed tower with forced draft.

The patent of the plaintiff in suit has novelty only in one respect. These cooling towers consist of various decks known as "drip decks" where the water is distributed at the top of the tower and flows down from one deck to another and passes between certain spaces between what is known as "drip bars" or "steps."

The patent of the plaintiff consists of what is known as a "spline," which is a spacing device placed between the various parts of the drip deck to keep them apart and at the same time, to take up the necessary expansion or warping due to the presence of the liquid and the passage of the air over the parts.

The defendant, in place of using this movable spline or piece of wood to separate these parts of the deck, has adopted a metal strip, consisting preferably of brass or copper, which is fastened across these drip bars or integral parts of the drip deck so that they can expand not only latitudinally but longitudinally.

In my opinion there is, in the first place, grave doubt as to whether or not the spline of the plain-

tiff [335] constitutes any novelty. But if it is so, it is clear that the fixed strip used by the defendant does not constitute any infringement. The injunction prayed for by the plaintiff will therefore be denied.

The defendant, however, counterclaims, claiming an infringement by virtue of the fact that the supporting members which hold up the various decks extend beyond the vertical members so as to support what are known as the "louvers," which are pieces of wood fastened to the outside, admitting the air and preventing the escape of the sprays of water.

The prior state of the art was such that in place of these transverse members being continuous and extending out to support the louvers, separate pieces were nailed or spiked on to the vertical members.

In my opinion there is nothing novel in the device claimed by the defendant. It seems to have been anticipated by prior patents. Therefore, the injunction prayed for in the cross-bill will be denied.

Another cross-bill or counterclaim, however, is based upon the fact that plaintiff has interfered with defendant by sending letters to prospective customers claiming that the device of the defendant was an infringement of patents of the plaintiff. Now the Court having found that it is not an infringement, the injunction prayed for by the answer, restraining the plaintiff from interfering with the business of the defendant in the manner set out in the cross-bill will be granted.

[Endorsed]: Filed Dec. 6, 1923. Walter B. Maling, Clerk. [336]

In the Southern Division of the United States District Court for the Northern District of California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Corporation),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

INTERLOCUTORY DECREE.

This cause having come on to be heard upon the pleadings, proceedings and proofs herein, taken and filed on behalf of both parties, and after due proceedings had and upon due consideration

IT IS ORDERED, ADJUDGED AND DECREED as follows:

(1) That the plaintiff's patent sued on No. 1,010,020, issued to the Mitchell-Tappen Company as assignee of Barton H. Coffey on the 28th day of November, 1911, even if valid, is not infringed and the bill is dismissed.

(2) That the plaintiff has been guilty of unfair competition against the defendant by making improper and unlawful use of its alleged ownership of various patents on Cooling Towers, including

the patent aforesaid in suit, and has unlawfully and without justification threatened, both orally and in writing, defendant's customers and prospective customers with suits for infringement if they used defendant's device and has otherwise unlawfully intimidated, harassed and annoyed defendant's said customers, and has disseminated [337] malicious and untrue representations against defendant and its officers in an endeavor to secure the trade of the defendant and to injure the reputation, business and goodwill of the defendant, and has otherwise injured and damaged defendant in its legitimate business.

(3) That defendant's counterclaim on Braun patent No. 1,442,784, dated January 16th, 1923, is dismissed for that said patent does not involve novelty and appears to be anticipated by prior patents.

(4) That no finding is made with respect to the first Braun patent No. 1,334,515, dated March 23d, 1920, set up in defendant's counterclaim, in view of the withdrawal of said patent from suit by defendant.

(5) That a writ of injunction shall issue out of this court perpetually enjoining and restraining the plaintiff, its officers, directors, clerks, attorneys, servants, workmen, agents and employees, and others acting under their direction, from issuing letters or advertisements or publishing statements in any form whatsoever, either written or oral, claiming that defendant's Water Cooling Tower devices infringe said alleged letters patent No. 1,010,020,

or any other letters patent of plaintiff, and from sending circulars or letters to any customer or representative or prospective customer of this defendant threatening such person or persons with litigation or prosecution, or with the costs and expenses of litigation, or otherwise publishing statements, either written or oral, intended, or by a reasonable construction likely or apt, to cause injury or damage to this defendant in the business of manufacture, use and/or sale of said Water Cooling Towers.

(6) That the matters affecting said counterclaim for [338] unfair competition be and the same is hereby referred to the Hon. Harry M. Wright, as Special Master in Chancery of this Court, to take and state the damages which defendant has sustained by reason of each unlawful and unfair acts of plaintiff and also the profits which have accrued to plaintiff by reason of its unlawful acts as aforesaid; and the plaintiff, its directors, officers, clerks, attorneys, servants, workmen, agents and employees, and others acting under their direction, are hereby directed and commanded to attend before said Master from time to time, as required and to produce before him such books, papers, documents, vouchers and records as the Master may require.

(7) That the defendant do recover of the plaintiff its costs and disbursements in this suit, in accordance with the rules of this Court; and that the question of increase of damages and all further ques-

tions be reserved until the coming in of the Master's Report.

JOHN S. PARTRIDGE,
Judge.

Dated: San Francisco, California, December 17, 1923.

[Endorsed]: Filed and entered Dec. 17, 1923.
Walter B. Maling, Clerk. [339]

(Title of Court and Cause.)

PERPETUAL INJUNCTION.

The President of the United States, to Cooling Tower Company, Inc., its Officers, Directors, Clerks, Attorneys, Servants, Workmen, Agents and Employees, and Others Acting Under Their Direction:

The above cause having come on to be heard on bill of complaint and answer, including setoff, counterclaim and cross-complaint, and the defendant, C. F. Braun & Co., having by decree dated the 17th day of December, 1923, obtained an allowance for an injunction, as prayed for in its setoff, counterclaim, and cross-complaint;

NOW, THEREFORE, we, having regard to the matters in said setoff, counterclaim, and cross-complaint contained, do hereby permanently and perpetually, strictly enjoin and restrain you, the said Cooling Tower Company, Inc., your, and each of your officers, directors, clerks, attorneys, servants, workmen, agents and employees, and others acting

Inc. (a corporation), by exhibiting to Alex B. Tappen as Pres. of said Cooling Tower Co., Inc., a corporation, at 15 John St., N. Y. C., the within original, and at the same time leaving with him a copy thereof.

Dated Jan. 11, 1924.

WM. C. HECHT,

United States Marshal, Southern District of New York.

(J. A. N.)

[Endorsed]: Filed Jan. 19, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [341]

(Title of Court and Cause.)

CERTIFIED COPY OF PERPETUAL INJUNCTION.

The President of the United States, to Cooling Tower Company, Inc., its Officers, Directors, Clerks, Attorneys, Servants, Workmen, Agents and Employees, and Others Acting Under Their Direction:

The above cause having come on to be heard on bill of complaint and answer, including setoff, counterclaim and cross-complaint, and the defendant, C. F. Braun & Co., having by decree dated the 17th day of December, 1923, obtained an allowance for an injunction, as prayed for in its setoff, counterclaim, and cross-complaint;

NOW, THEREFORE, we, having regard to the matters in said setoff, counterclaim, and cross-complaint contained, do hereby permanently and perpetually, strictly enjoin and restrain you, the said Cooling Tower Company, Inc., your, and each of your officers, directors, clerks, attorneys, servants, workmen, agents and employees, and others acting under their direction, from issuing letters or advertisements or publishing statements in any form whatsoever, either written or oral, claiming that defendant's Water Cooling Tower devices infringed alleged letters patent No. 1,010,020, in suit herein or any other letters patent of plaintiff, and from sending circulars or letters to any customer or representative or prospective customer of this defendant threatening such person or persons with litigation or prosecution, or with the costs and expenses of litigation, or otherwise publishing statements, either written or oral, intended or by a reasonable construction likely or apt, to cause injury or damage to this defendant in the business of manufacture, use and/or sale of said Water Cooling Towers.

Hereof fail not under the penalty of the law thence ensuing. [342]

WITNESS, the Honorable JOHN S. PARTRIDGE, Judge of the United States District Court for the Northern District of California, this 27th day of December, 1923.

[Seal] WALTER B. MALING,
Clerk of the United States District Court for the
Northern District of California.

By J. A. Schaertzer,
Deputy Clerk.

No. 923.—EQUITY.

(Title of Case.)

United States of America,

Northern District of California,

City and County of San Francisco,—ss.

I, Walter B. Maling, Clerk of the United States District Court for the Northern District of California, do hereby certify the foregoing to be a full, true and correct copy of the original perpetual injunction, issued December 27th, 1923, in the above-entitled cause.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said District Court this 27th day of December, A. D. 1923.

[Seal]

WALTER B. MALING,

Clerk of the United States District Court, Northern District of California.

By J. A. Schaertzer,
Deputy Clerk.

(RETURN ON SERVICE OF WRIT.)

United States of America,

South. District of Cal.,—ss.

I hereby certify and return that I served the annexed perpetual injunction on N. O. Fleming by handing to and leaving a true and correct copy thereof with N. O. Fleming personally at Hunting-

ton Park in said District on the 8th day of January,
A. D. 1924.

A. C. SITTEL,
U. S. Marshal.

By H. H. Yonkin,
Deputy.

[Endorsed]: Filed Jan. 24, 1924. Walter B.
Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.
[343]

In the Southern Division of the United States Dis-
trict Court for the Northern District of Cali-
fornia, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Cor-
poration),

Plaintiff,

vs.

C. F. BRAUN & COMPANY (a Corporation),
Defendant.

PETITION FOR APPEAL.

To the Honorable Judge of the United States Dis-
trict Court for the Northern District of Cali-
fornia, Southern Division.

The above-named plaintiff feeling aggrieved by
the decree rendered and entered in the above-
entitled cause on the 17th day of December, 1923,
does hereby appeal from said decree to the Circuit
Court of Appeals for the Ninth Circuit for the

reasons set forth in the assignment of errors, filed herewith, and it prays that its appeal be allowed and that citation be issued as provided by law, and that a transcript of the record, proceedings, documents and exhibits upon which said decree was based, duly authenticated, be sent to the United States Circuit Court of Appeals for the Ninth Circuit, under the rules of such court in such cases made and provided.

And your petitioner further prays that the proper order relating to the required security to be required, be made.

EDWARD A. O'BRIEN,
ASHLEY & FOULDS,
Solicitors and Counsel for Plaintiff.

[Endorsed]: Filed Jan. 15, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.
[344]

In the Southern Division of the United States District Court for the Northern District of California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Corporation),

Plaintiff,

vs.

C. F. BRAUN & COMPANY (a Corporation),
Defendant.

ASSIGNMENT OF ERRORS.

Now comes the plaintiff in the above-entitled cause and files the following assignment of errors upon which it will rely upon the prosecution of the appeal in the above-entitled cause, from the decree made by this Honorable Court on the 17th day of December, 1923.

1. That the said United States District Court for the Northern District of California, Southern Division, erred in that it erroneously decreed that:

That plaintiff's patent sued on No. 1,019,020 issued to the Mitchell-Tappen Company as assignee of Barton H. Coffey on the 28th day of November, 1911, even if valid, is not infringed and the bill is dismissed.

2. That the said United States District Court for the Northern District of California, Southern Division, erred in that it erroneously decreed that:

That the plaintiff has been guilty of unfair competition against the defendant by making improper and unlawful use of its alleged ownership of various patents on Cooling Towers, including the patent aforesaid in suit, and has unlawfully and without justification threatened, both orally and in writing, defendant's customers and prospective customers with suits for infringement if they used defendant's devices and has otherwise unlawfully intimidated, harassed and annoyed defendant's said customers, and has disseminated malicious and untrue representations against [345] defend-

ant and its officers in an endeavor to secure the trade of the defendant and to injure the reputation, business and goodwill of the defendant, and has otherwise injured and damaged defendant in its legitimate business.

3. That the said United States District Court for the Northern District of California, Southern Division, erred in that it erroneously decreed that:

That no finding is made with respect to the first Braun patent No. 1,334,515, dated March 23d, 1920, set up in defendant's counterclaim, in view of the withdrawal of said patent from suit by defendant.

4. That the said United States District Court for the Northern District of California, Southern Division, erred in that it erroneously decreed that:

That a writ of injunction shall issue out of this court perpetually enjoining and restraining the plaintiff, its officers, directors, clerks, attorneys, servants, workmen, agents and employees, and others acting under their direction, from issuing letters or advertisements or publishing statements in any form whatsoever, either written or oral, claiming that defendant's Water Cooling Tower devices infringed said alleged letters patent No. 1,010,020, or any other letters patent of plaintiff, and from sending circulars or letters to any customer or representative or prospective customer of this defendant threatening such person or persons with litigation or prosecution, or with the costs and expenses of litigation, or otherwise pub-

lishing statements, either written or oral, intended, or by a reasonable construction likely or apt, to cause injury or damage to this defendant in the business of manufacture, use and, or sale of said Water Cooling Towers.

5. That the said United States District Court for the Northern District of California, Southern Division, erred in that it erroneously decreed that:

That the matters affecting said counterclaim for unfair competition be and the same is hereby referred to the Hon. Harry M. Wright, as special Master in Chancery of this Court, to take and state the damages which defendant has sustained by reason of such unlawful and unfair acts of plaintiff and also the profits which have accrued to plaintiff by reason of its unlawful acts aforesaid; and the plaintiff, its directors, officers, clerks, attorneys, servants, workmen, agents and employees, and others acting under their direction, are hereby directed and commanded to attend before said Master from time to time, as required, and to produce before him such books, papers, documents, vouchers and records as the Master may require. [346]

6. That the said United States District Court for the Northern District of California, Southern Division erred in that it erroneously decreed that:

That the defendant do recover of the plaintiff its costs and disbursements in this suit, in accordance with the rules of this court; and

that the question of increase of damages and all further questions be reserved until the coming in of the Master's report.

7. That the said court erred in that it erroneously found and decreed that the plaintiff's patent No. 1,010,020 was not infringed by the defendant.

8. That the said court erred in that it erroneously decreed that the bill of complaint be dismissed.

9. That the said court erred in that it erroneously found and decreed that the plaintiff has been guilty of improper or unlawful use of its alleged ownership of various patents on cooling towers.

10. That the said court erred in that it erroneously found and decreed that the plaintiff had been guilty of improper or unlawful use of its ownership of the patent in suit.

11. That the said court erred in that it erroneously found and decreed that the plaintiff did unlawfully or without justification threaten defendant's customers or prospective customers with suits for infringement if they used defendant's devices.

12. That the said court erred in that it erroneously found and decreed that the plaintiff did unlawfully intimidate, harass or annoy defendant's customers.

13. That the said court erred in that it erroneously found and decreed that plaintiff did dis-

seminate malicious and untrue representations against defendant.

14. That the said court erred in that it erroneously found and decreed that the plaintiff had done any unlawful [347] or improper acts or things in an endeavor to secure the trade of the defendant or to injure the reputation, business or goodwill of the defendant or otherwise, or that plaintiff did in any manner injure or damage the defendant in its legitimate business or otherwise.

15. That the said court erred in that it erroneously found and decreed that a writ of injunction should issue against the plaintiff, its officers, workmen, agents, employees or others acting under its direction.

16. That the said court erroneously decreed that the plaintiff be enjoined or restrained from claiming that defendant's water cooling towers infringe letters patent No. 1,010,020.

17. That the said court erroneously decreed that plaintiff be restrained from claiming that defendant's water cooling towers infringe any letters patent of plaintiff.

18. That the said court erroneously decreed that plaintiff be restrained from sending circulars or letters to any customer or representative or prospective customer of defendant threatening such person or persons with litigation or prosecution or with costs and expenses of litigation or otherwise publishing statements intended or by reasonable construction likely or apt to cause injury or

damage to defendant in the manufacture, use or sale of water cooling towers.

19. That the said court erred in that it erroneously decreed that the defendant recover of plaintiff, the costs and disbursements of this suit.

20. That the said court erred in that it erroneously found that the patent in suit of plaintiff has novelty only in one respect.

21. That the said court erred in that it erroneously [348] found that the patent or invention of plaintiff "consists of what is known as a 'spline' which is a spacing device placed between the various parts of the drip deck to keep them apart and at the same time to take up the necessary expansion or warping due to the presence of the liquid and the passage of the air over the parts."

22. That the said court erred in that it erroneously found that the defendant in place of using the movable spline or piece of wood to separate the parts of deck, had adopted a metal strip, consisting *preparably* of brass or copper which is fastened across the drip bars or integral parts of the drip deck so that they can expand not only latitudinally but longitudinally.

23. That the said court erred in that it erroneously found that there is doubt as to whether or not the spline of the plaintiff constitutes novelty.

24. That the said court erred in that it erroneously found and decreed that the court having found that the device of the defendant is not an infringement of the patent of plaintiff, the injunction prayed for by the answer, restraining the

plaintiff from interfering with the business of the defendant in the manner set out in the cross-bill will be granted.

25. That the said court erred in that it did not find, adjudge, and decree as requested by plaintiff, that the defendant has infringed the plaintiff's patent 1,010,020.

26. That the said court erred in that it did not find, adjudge, and decree as requested by plaintiff, that the manufacture and sale of the device of the defendant constitutes an infringement of the plaintiff's patent 1,010,020.

27. That the said court erred in that it did not find, adjudge and decree as requested by plaintiff, that the defendant be enjoined and restrained from infringing [349] plaintiff's letters patent No. 1,010,020.

28. That the said court erred in that it did not find, adjudge and decree as requested by plaintiff that the defendant be required to account for and pay to plaintiff the profits derived by it from its infringement of plaintiff's patent No. 1,010,020 and the damages suffered by plaintiff thereby.

29. That the said court erred in that it did not adjudge and decree as requested by plaintiff, that the plaintiff recover costs against the defendant.

30. That the said court erred in that it erroneously permitted Carl F. Braun a witness on behalf of defendant to testify, over the objection of plaintiff, to conversations with an employee of Union Oil Co.

31. That the said court erred in that it erroneously admitted over the objection of plaintiff in-

competent and hearsay testimony of the witness Carl F. Braun on behalf of defendant as to alleged acts and conversations of one Fleming.

32. That the said court erred in that it erroneously admitted over the objection of plaintiff incompetent and improper testimony of the witness Carl F. Braun as to alleged acts and conversations of one Fleming.

33. That the said court erred in that it erroneously admitted over the objection of plaintiff incompetent, improper and hearsay testimony of the witness Carl F. Braun, on behalf of defendant as to alleged acts and conversations of one Fleming.

EDWARD A. O'BRIEN,
ASHLEY & FOULDS,

Solicitors and Counsel for Plaintiff.

[Endorsed]: Filed Jan. 15, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.
[350]

In the Southern Division of the United States District Court for the Northern District of California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC., (a Corporation),

Plaintiff,

vs.

C. F. BRAUN & COMPANY (a Corporation),
Defendant.

ORDER ALLOWING APPEAL.

On the motion of Edward A. O'Brien, Esq., Solicitor and of counsel for plaintiff, IT IS HEREBY ORDERED that an appeal to the Circuit Court of Appeals for the Ninth Circuit from the decree heretofore filed and entered herein, be, and the same is hereby allowed, and that a certified transcript of the record, testimony, exhibits, stipulations and all proceedings be forthwith transmitted to said Circuit Court of Appeals for the Ninth Circuit.

It is further ordered that the bond for costs on appeal be fixed at the sum of Two Hundred (\$200.00) Dollars.

Dated, January 15th, 1924.

FRANK H. RUDKIN,
Judge.

[Endorsed]: Filed Jan. 15, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.
[351]

(Premium charged for this bond is \$5.00 per annum.)

(BOND ON APPEAL.)

KNOW ALL MEN BY THESE PRESENTS, That we, Cooling Tower Company, Inc., a corporation, as principal, and United States Fidelity and Guaranty Company, as surety, are held and firmly bound unto C. F. Braun & Co., a corporation in

the full and just sum of two hundred dollars, to be paid to the said C. F. Braun & Co., its certain attorney, executors, administrators or assigns; to which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, jointly and severally, by these presents.

Sealed with our seals and dated this 20th day of February in the year of our Lord one thousand nine hundred and twenty-four.

WHEREAS, lately at a District Court of the United States for the Southern Division of the Northern District of California, Second Division, in a suit depending in said court, between Cooling Tower Company, Inc., plaintiff, and C. F. Braun & Co., defendant, a decree was rendered against the said Cooling Tower Company, Inc., and the said Cooling Tower Company, Inc., having appealed from said decree to the Circuit Court of Appeals, for the Ninth Circuit having obtained from said Court to reverse the decree in the aforesaid suit, and a citation directed to the said C. F. Braun & Co., having been issued citing and admonishing it to be and appear at a United States Circuit Court of Appeals for the Ninth Circuit, to be holden at San Francisco, in the State of California.

NOW, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, That if the said Cooling Tower Company, Inc., shall prosecute its said appeal to effect, and answer all damages and costs if it fail to make its plea good, then the above

obligation to be void; else to remain in full force and virtue.

THE COOLING TOWER CO., INC. (Seal)

A. B. TAPPEN, (Seal)

Principal.

UNITED STATES FIDELITY & GUAR-
ANTY CO. (Seal)

By HENRY V. D. JOHNS, (Seal)

Attorney-in-fact.

By ERNEST W. SWINGLEY,

Attorney-in-fact.

Acknowledged before me the day and year first above written.

[Seal]

JOSEPH H. TAYLOR,

Notary Public, Westchester Co., N. Y. Co. Clerk's

No. 161. N. Y. Co. Register's No. 5151.

Commission expires March 30, 1925. [352]

Form of bond and sufficiency of sureties approved.

JOHN S. PARTRIDGE,

Judge.

[Endorsed]: Filed Feb. 26, 1924. Walter B. Maling, Clerk. [353]

In the Southern Division of the United States District Court, for the Northern District of California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Corporation),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

ASSIGNMENT OF ERRORS.

Now comes C. F. Braun & Co., defendant in the above cause in the court below, and appellant herein, by Chas. E. Townsend, Esq., its solicitor and counsel, and says that in the record and proceedings in the said cause in the said court below there is manifest error, and it particularly specifies as the errors upon which it will rely and which it will urge upon its appeal in the above-entitled cause:

(1) That the District Court of the United States for the Northern District of California, Second Division erred in dismissing the counterclaim of defendant on Braun patent No. 1,442,784.

(2) That the District Court of the United States for the Northern District of California, Second Division, erred in finding that said Braun patent No. 1,442,784 does not involve novelty.

(3) That the District Court of the United States for the Northern District of California, Second Division, erred in finding that said Braun patent No. 1,442,784 does appear to be [354] anticipated by the prior patents.

(4) That the District Court of the United States for the Northern District of California, Second Division, erred in failing to find letters patent No. 1,442,784 valid and infringed.

(5) That the District Court of the United States for the Northern District of California, Second Division, erred in failing to grant injunction restraining the further infringement of letters patent No. 1,442,784.

(6) That the District Court of the United States for the Northern District of California, Second Division, erred in failing to find that defendant-appellant was entitled to accounting for damages and profits for infringement of letters patent No. 1,442,784.

In order that the foregoing assignment of errors may be and appear of record, the defendant presents the same to the Court, and prays that such disposition be made thereof as in accordance with the law and statutes of the United States in such cases made and provided.

All of which is respectfully submitted.

CHAS. E. TOWNSEND.

Solicitor for Defendant.

Dated: January 15th, 1924. [355]

In the Southern Division of the United States
District Court for the Northern District of
California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Cor-
poration).

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

PETITION FOR ORDER ALLOWING APPEAL.

To the Honorable Court, Above Entitled:

The above-named defendant, C. F. Braun & Co., conceiving itself aggrieved by the decree filed and entered on the 17th day of December, 1923, in the above-entitled cause, does hereby appeal therefrom to the United States Circuit Court of Appeals, for the Ninth Judicial Circuit for the reasons and upon the grounds specified in the assignment of errors, which is filed herewith, and prays that this appeal may be allowed, that a citation issue as provided by law, and that a transcript of the record, proceedings, exhibits and papers, upon which said decree was made and entered as afore-said, duly authenticated, may be sent to the Circuit Court of Appeals for the Ninth Circuit, sitting at San Francisco.

And your petitioner further prays that an order be made fixing the amount of security which the

defendant, C. F. Braun & Co., shall give and furnish upon such appeal, and that the transcript of evidence, taken in open court, on final hearing be ordered written up and be taxed as costs.

Dated: Jan. 15, 1924.

CHAS. E. TOWNSEND,
Solicitor for Defendant. [356]

In the Southern Division of the United States
District Court for the Northern District of
California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Cor-
poration),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

ORDER ALLOWING APPEAL.

The foregoing petition for appeal is allowed upon the petitioners filing a bond in the sum of Two Hundred Fifty (\$250.00) Dollars, with sufficient sureties, to be conditioned as required by law.

And it is further ordered that the transcript of evidence taken in open court on final hearing

be written up and that the expense of such transcript be taxed as costs.

FRANK H. RUDKIN,
Judge.

Dated: Jan. 15, 1924. [357]

In the Southern Division of the United States
District Court for the Northern District of
California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Cor-
poration),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

ORDER ALLOWING WITHDRAWAL OF ORI-
GINAL EXHIBITS.

On motion of Chas. E. Townsend, Esq., solicitor for defendant, and good cause appearing therefor, it is by the Court now ordered:

That all exhibits in the above-entitled case, both plaintiff's exhibits and defendant's exhibits, including models, drawings, copies of patents, books and printed publications, and which are impracticable to have copied or duplicated, be, and they are hereby allowed to be withdrawn from the files of this court in said case and transmitted by the Clerk of this court to the United States Circuit

Court of Appeals for the Ninth Circuit as a part of the record upon appeal for the defendant herein to the said Circuit Court of Appeals; said original exhibits to be returned to the files of this court upon the determination of said appeal by said Circuit Court of Appeals.

FRANK H. RUDKIN,
Judge.

Dated: Jan. 15, 1924.

[Endorsed]: Filed Jan. 15, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [358]

The premium charged for this bond is \$10.00 Dollars per annum.

In the Southern Division of the United States District Court for the Northern District of California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Corporation),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

BOND ON APPEAL.

KNOW ALL MEN BY THESE PRESENTS:
That we, C. F. Braun & Co., a California corpora-

tion, as principal, and the Fidelity and Deposit Co. of Maryland, a corporation, created, organized and existing under and by virtue of the laws of the State of Maryland, as surety, are held and firmly bound unto the above-named appellee, Cooling Tower Company, Inc., a Corporation, in the sum of Two Hundred Fifty (\$250.00) Dollars, in lawful money of the United States of America, for the payment of which well and truly to be made unto the said appellee, its successors and assigns, we bind ourselves, our successors and assigns, jointly and severally, firmly by these presents, conditioned that

WHEREAS, on the 17th day of December, 1923, in the Southern Division of the United States District Court for the Northern District of California, Second Division, in a suit pending in that court, wherein C. F. Braun & Co. was the defendant and said Cooling Tower Company, Inc., was [359] the plaintiff, numbered on the Equity Docket as 923, a decree was rendered, which in part was against the said C. F. Braun & Co., and

WHEREAS, said C. F. Braun & Co., having obtained an appeal to the United States Circuit Court of Appeals for the Ninth Circuit, to reverse a portion of the said decree, which said decree was entered in the United States District Court on the 17th day of December, 1923, and an appeal allowed, and citation directed to the said appellee, citing and admonishing it to be and appear at a session of the United States Circuit Court of Appeals for the Ninth Circuit.

NOW, THEREFORE, the condition of this obligation is such that if the above-named appellant shall prosecute said appeal to effect and answer all costs, if it fails to make its plea good, then the above obligation to be void; else to remain in full force and virtue.

C. F. BRAUN & CO.,

By C. F. BRAUN, (Corporate Seal)

President.

FIDELITY AND DEPOSIT CO. OF MD.,

By EDGAR H. BENNETT, (Corporate Seal)

Surety.

Attorney-in-fact.

E. R. McCORNING,

Agent.

Dated: Feb. 15, 1924.

Approved:

JOHN S. PARTRIDGE,

Judge.

[Endorsed]: Filed Feb. 15, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

[360]

In the Southern Division of the United States
District Court for the Northern District of
California, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Cor-
poration),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

STIPULATION RE PRINTING AND COSTS ON
APPEAL.

IT IS HEREBY STIPULATED by and between the parties hereto, subject to the approval of the Court, that on the appeal and cross-appeal of this cause to the Circuit Court of Appeals, for the Ninth Circuit, one record only including the transcript of the evidence on final hearing in the District Court and appeal papers, etc., of both parties, need be printed, and that all items taxable as costs on the appeal of this cause, including the Official Court Reporter's fees and costs of transcribing the testimony on final hearing and certifying the record in the District Court, and the printing of the record on appeal as aforesaid, and fees in the Circuit Court of Appeals, shall be paid in equal shares by the parties hereto and at the times when due, said amounts so to be taxed as costs and paid accordingly as the order of the

Court of Appeals shall determine that costs shall be taxed.

EDWARD A. O'BRIEN,
Solicitor for Plaintiff,
CHAS. E. TOWNSEND,
Solicitor for Defendant.

Dated: January 31, 1924.

So ordered:

JOHN S. PARTRIDGE,
Judge.

[Endorsed]: Filed Jan. 31, 1924. Walter B. Mal-
ing, Clerk. By J. A. Schaertzer, Deputy Clerk.
[361]

In the Southern Division of the United States Dis-
trict Court for the Northern District of Cali-
fornia, Second Division.

IN EQUITY—No. 923.

COOLING TOWER COMPANY, INC. (a Cor-
poration),

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

STIPULATED PRAECIPE FOR TRANSCRIPT
ON APPEAL.

(Superseding Praecipe for Transcript on Appeal
Heretofore Filed by Either Party.)

To the Clerk of the United States District Court:
Please incorporate, in accordance with this stipu-

lation of the parties, the following papers, documents and exhibits in the transcript of record on appeal in the above-entitled cause, omitting title of cause and omitting copying of all documentary exhibits, and transmitting one combined record only as per stipulation of the parties dated January 31, 1924. This stipulated Praecipe supersedes Praecipe for Transcript on Appeal heretofore filed by either party:

- (1) Bill of complaint.
- (2) Answer of defendant, including setoff, counterclaim and cross-complaint.
- (3) Reply of plaintiff to setoff, counterclaim and cross-complaint.
- (4) Memo opinion of District Judge Partridge.
- (5) Interlocutory decree dated December 17, 1923.
- (6) Perpetual injunction.
- (7) Transcript of the entire record of all proceedings, and testimony in full, in the exact words of the witnesses, including depositions.
- (8) All exhibits in the case.
- (9) Plaintiff's petition for order allowing appeal.
[362]
- (10) Defendant's petition for order allowing appeal.
- (11) Plaintiff's assignment of errors.
- (12) Defendant's assignment of errors.
- (13) Order allowing appeal of plaintiff.
- (14) Order allowing appeal of defendant.

- (15) Order allowing withdrawal of original exhibits.
- (16) Bond on appeal of plaintiff.
- (17) Bond on appeal of defendant.
- (18) Stipulation re printing and costs on appeal, filed January 31, 1924.
- (19) Stipulation praecipe for transcript upon appeal.
- (20) Citation to plaintiff.
- (21) Citation to defendant.

Dated: February 14, 1924.

EDWARD A. O'BRIEN,
Solicitor for Plaintiff.
CHAS. E. TOWNSEND,
Solicitor for Defendant.

Approved:

JOHN S. PARTRIDGE,
Judge.

[Endorsed]: Filed Feb. 14, 1924. Walter B. Maling, Clerk. [363]

CERTIFICATE OF CLERK U. S. DISTRICT COURT TO TRANSCRIPT OF RECORD.

I, Walter B. Maling, Clerk of the District Court of the United States, in and for the Northern District of California, do hereby certify the foregoing three hundred sixty-three (363) pages, numbered from 1 to 363, inclusive, to be a full, true and cor-

allowing an appeal, of record in the Clerk's Office of the United States District Court for the Northern District of California, wherein Cooling Tower Company, Inc., a corporation, is appellant, and you are appellee, to show cause, if any there be, why the decree rendered against the said appellant, as in the said order allowing appeal mentioned, should not be corrected, and why speedy justice should not be done to the parties in that behalf.

WITNESS, the Honorable FRANK H. RUDKIN, United States Circuit Judge for the 9th Circuit, this 15th day of February, A. D. 1924.

FRANK H. RUDKIN,
United States Circuit Judge.

Service of the within citation admitted this 15th day of February, 1924.

CHAS. E. TOWNSEND,
Solicitor for Defendant-Appellant.

[Endorsed]: No. 923. United States District Court for the Northern District of California. Cooling Tower Company, Inc., a Corporation, Appellant, vs. C. F. Braun and Company, a Corporation. Citation on Appeal. Filed Feb. 15, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [365]

CITATION (COOLING TOWER COMPANY,
INC.).

UNITED STATES OF AMERICA,—ss.

The President of the United States, to Cooling
Tower Company, Inc. (a Corporation),
GREETING:

You are hereby cited and admonished to be and
appear at a United States Circuit Court of Ap-
peals for the Ninth Circuit, to be holden at the
city of San Francisco, in the State of California,
within thirty days from the date hereof, pursuant
to an order allowing an appeal, of record in the
clerk's office of the United States District Court for
the Northern District of California (Southern Di-
vision), wherein C. F. Braun & Co. (a Corpora-
tion), is appellant, and you are appellee, to show
cause, if any there be, why the decree rendered
against the said appellant, as in the said order al-
lowing appeal mentioned, should not be corrected,
and why speedy justice should not be done to the
parties in that behalf.

WITNESS, the Honorable JOHN S. PAR-
TRIDGE, United States District Judge for the
Northern District of California, this 15th day of
February, A. D. 1924.

JOHN S. PARTRIDGE,
United States District Judge.

Service of the within citation on appeal admitted
this 15th day of February, 1924.

EDWARD A. O'BRIEN,
Solicitor for Plaintiff-Appellee.

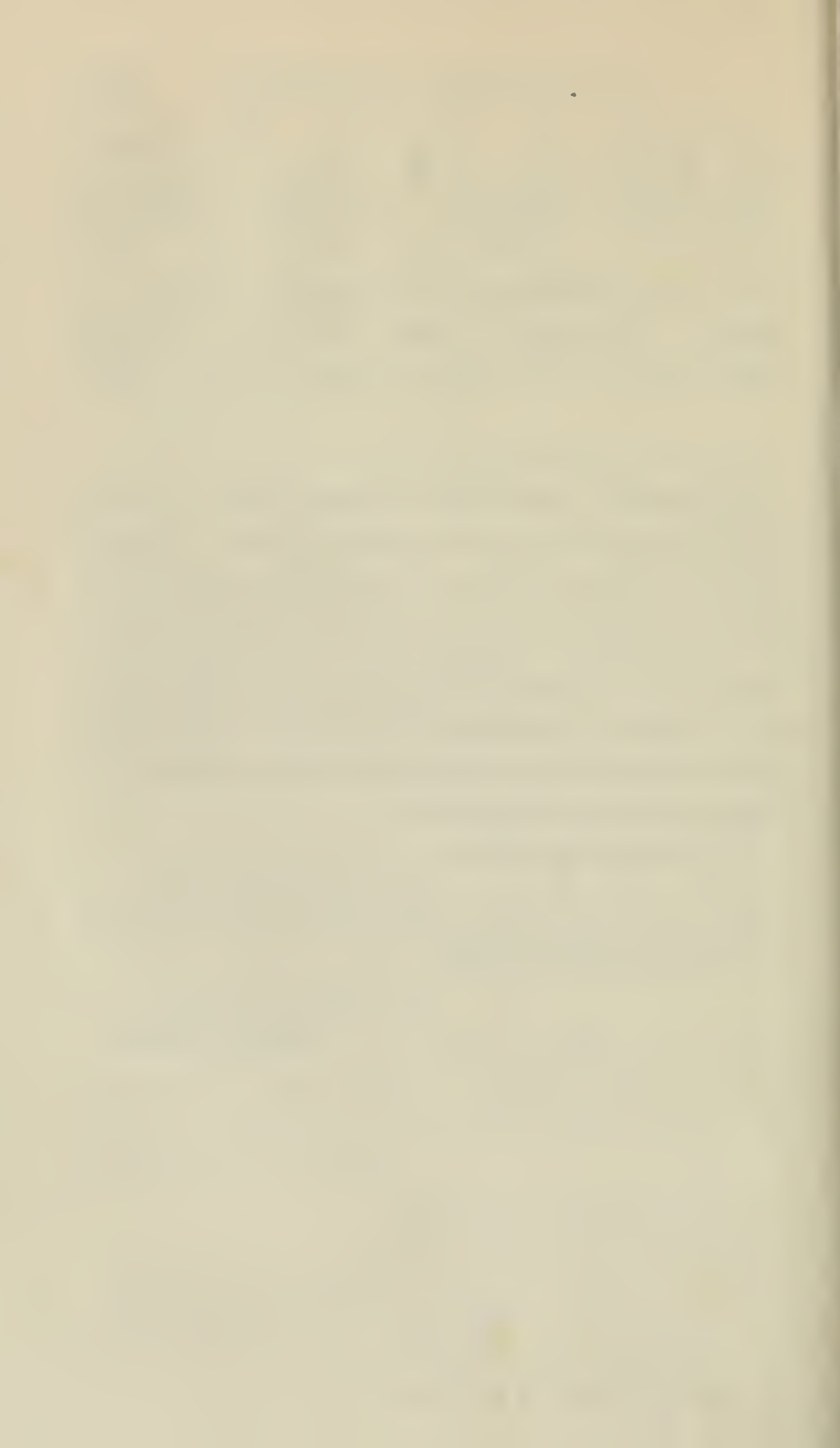
[Endorsed]: In Equity—No. 923. United States District Court for the Northern District of California (So. Division). C. F. Braun & Co. (a Corporation), Appellant, vs. Cooling Tower Company, Inc. (a Corporation), Appellee. Citation on Appeal. Filed Feb. 15, 1924. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [366]

[Endorsed]: No. 4221. United States Circuit Court of Appeals for the Ninth Circuit. Cooling Tower Company, Inc., a Corporation, Appellant, and Cross-appellee, vs. C. F. Braun & Company, a Corporation, Appellee and Cross-appellant. Transcript of Record. Upon Appeal and Cross-appeal from the Southern Division of the United States District Court for the Northern District of California, Second Division.

Filed March 14, 1924.

F. D. MONCKTON,
Clerk of the United States Circuit Court of Appeals
for the Ninth Circuit.

By Paul P. O'Brien,
Deputy Clerk.



No. 4221

United States
Circuit Court of Appeals

For the Ninth Circuit.

COOLING TOWER COMPANY, INC., a Corporation,

Appellant and Cross-Appellee,

vs.

C. F. BRAUN & COMPANY, a Corporation,

Appellee and Cross-Appellant.

BOOK OF EXHIBITS

Upon Appeal and Cross-Appeal from the Southern
Division of the United States District Court
for the Northern District of California,
Second Division.

INDEX TO BOOK OF EXHIBITS.

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Affidavit of Charles Moser	86

EXHIBITS:

Defendant's Exhibit "DD"—File-wrapper and Contents of Letters Patent No. 1,010,020, Issued to Barton H. Coffey for Improvement in Devices for Cooling Liquids	53
Defendant's Exhibit "N"—File-wrapper and Contents of Letters Patent No. 1,442,784, Issued to Carl F. Braun for Improvement in Water Cooling Towers	1

DEFENDANT'S EXHIBIT "N."

[Endorsed]: No. 923. U. S. Dist. Court, Nor. Dist. Calif. Deft. Exhibit "N." Filed 11/28/23. Maling, Clerk.

No. 4221. United States Circuit Court of Appeals for the Ninth Circuit. Filed Mar. 18, 1924. F. D. Monekton, Clerk.

2—390

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come,
GREETING:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File-wrapper and Contents, in the matter of the

Letters Patent of

Carl F. Braun,

Number 1,442,784, Granted January 16, 1923,
for

Improvement in Water Cooling Towers.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington, this 6th day of June, in the year of our Lord, one thousand nine hundred and twenty-three and of the Independence of the United States of America the one hundred and forty-seventh.

[Seal]

WM. A. KINNAN,
Acting Commissioner of Patents.

1920,

NUMBER (Series of 1915),

377277.

(EX'R'S BOOK) 215-8.

DIV. 32.

Patent

No. 1442784.

Jan. 16, 1923.

Name—Carl F. Braun,

of—San Francisco,

County of

State of—California,

Invention—Water Cooling Towers,

No., filed, 191., PARTS OF APPLICATION FILED.

	Original		Renewed
Petition	April 28, 1920		, 192
Affidavit	“ “, 1920		, 192
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First Fee Cash \$15	Apr. 28, 1920		, 192
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Examined and Passed for Issue			
	Dec. 6, 1922		, 192
Jay F. Bancroft, Exr. Div. 32		Exr. Div.—	
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	By Commissioner.		
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“ “ Cert.	, 192		, 192

Patented—Jan. 10, 1923.

Attorney—Charles E. Townsend, Crocker Bldg., San
Francisco, Cal.

Associate Attorney

(No. of Claims Allowed—12. Print Claim 2 in O.
(G. Cl. 261-114).

Title as Allowed—Water Cooling Tower.

\$15 Rec'd.

April 28, 1920.

C. C. U. S. Patent Office.

U. S. Patent Office,

May 1-1920.

Division XXXII.

Serial No. 377277. Paper No. 1.
Application.

Filed Apr. 28, 1920.

PETITION.

11306.

To the Commissioner of Patents:

Your Petitioner, CARL F. BRAUN, a Citizen of the United States and resident of City and County of San Francisco, and State of California, whose Post Office address is Atlas Building, prays that Letters Patent may be granted to him for the improvement in WATER COOLING TOWERS, set forth in the annexed specification; and he hereby appoints CHAS. E. TOWNSEND, whose register number is 6556, of San Francisco, California, and whose address is 911-917 Crocker Building, San Francisco, California, his Attorney, with full power of substitution and revocation to prosecute this application, to make alterations and amendments therein, to receive the Patent, and to

transact all business in the Patent Office connected therewith.

Signed at San Francisco, in the County of San Francisco and State of California, this 15th day of April, 1920.

In signing, the first or given name
should be written in full.

CARL F. BRAUN.

[Twenty-five cents U. S. Internal Revenue stamp attached. Cancelled.]

Specification

To all whom it may concern:

Be it known that I, CARL F. BRAUN, a citizen of the United States, residing at city and county of San Francisco, and State of California, have invented a new and useful Improvement in Water-Cooling Towers, of which the following is a specification.

377277—1

11307

This invention relates to water cooling towers.

It is the principal object of the present invention to provide a water-cooling tower of the atmospheric type which is of simple construction and so designed as to be formed from composite units formed at the plant and adapted to be readily assembled at the point of installation, thereby insuring that the erection process may be rapidly carried on and that the cooling tower when finished will be of a predetermined standard design.

The present invention contemplates the use of a main frame and a plurality of side and corner

units adapted to be assembled relative to the main frame in a manner to produce a cooling tower of any predetermined capacity.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a view in side elevation showing a tower of the present construction with parts broken away to more clearly show the structural details.

Fig. 2 is a view in plan showing the completely assembled tower.

Fig. 3 is an enlarged view in section through the feed and distributing troughs as seen on the line 3—3 of Fig. 2.

Fig. 4 is a view in elevation showing one of the corner units.

Fig. 5 is a view in elevation showing one of the side units.

377277—2

11308

concerned

The present invention is particularly Λ with a cooling tower of the general type shown in my patent, No. 1,334,515, issued March 23, 1920, and entitled "Water Cooling Tower." In that patent however, the cooling tower is gradually built up from slat and frame members while in the present instance the frame is originally built, thereafter the louvres are formed from corner and side louvre sections built at the manufacturing plant and assembled at the erection locality.

In the drawings, 10 indicates vertical corner posts
 vertical members
 forming the Λ frame Λ structure upon which horizontal frame members 11 are supported. The corner posts and frame members are here indicated as being formed of wood. Suitable diagonal braces

bracing Λ pins 12 are used to secure the corner posts in rigid relation to each other while the horizontal frame members 11 are adapted to cross each other at the posts and to be secured thereto. Attention is directed to the fact that the horizontal members project a considerable distance from the vertical faces of the posts, thus forming out bearing supports for the louvres 13. These louvres are of composite construction and comprise side louvre sections 14, and corner sections 15. Each of the sections consists of grooved end rails 16 into which the opposite ends of the louvre boards 17 project. It is preferable that the louvre boards shall overlap each other at their joints, thereby providing a substantially water tight wall which will prevent leakage of the water in the cooling tower and also shield the central portion of the tower from the action of wind. The louvre walls extend upwardly and outwardly at angles of substantially 45° while the sections are bolted by their lower edges to the horizontal frame members 11 at points near the posts 10 and by their upper edges to the outer ends of the horizontal frame members, thus being sup-

11309

ported in their inclined positions. In this manner the upper edges of the louvre walls will conceal the lower edges of the super adjacent walls, thus forming a complete wind break while permitting free circulation of air between the various walls. In the drawings the cooling tower is formed from single sections 14 and 15, the sections 14 being secured along the sides of the tower and between the horizontal frame members while the sections 15 are secured diagonally across the corners of the tower and between the projections of the horizontal frame members crossing at the posts. If the length of section 14 is excessively great intermediate boards 18 may be used to secure the various louvre boards 17 in position and prevent them from sliding or sagging.

Mounted upon the horizontal frame sections and within the area defined by these sections and the corner posts are a plurality of superimposed decks. The uppermost of these decks is a distributing deck 19 secured at the top of the frame and formed of a plurality of slats extending parallel to each other and disposed in spaced relation to each other. This construction is more completely disclosed in my patent as mentioned in the foregoing specification. A plurality of frame members beneath the distributing deck are cooling decks 20. These decks are formed in a similar manner to that of the distributing deck and are arranged with their slats extending in the same general direction as the intervals
slats of the distributing deck. At Δ ~~traverse~~

throughout the height of the tower redistributing decks 21 are provided. The redistributing decks are also formed in the manner previously described while their slats lie at right angles to the slats of the cooling decks. This will permit the proper overflow of the water onto the various cooling decks and will further insure that the water will be redistributed to be uniformly apportioned to the

377277—4

11310

various decks, even though the tower is in operation in a high wind.

The delivery and initial distribution of the water is made from a main launder 22 which is supported above the first distributing deck 19 and is formed as shown in Fig. 3. This launder comprises a plurality of longitudinally extending boards 23 which are tongued and grooved to form a substantially water tight trough. These launder boards are held together by frame members 24. The frames are formed with a substantially accurate semi-circular seat adapted to conform to the outer curved faces of the boards and to provide a support for the boards when they are secured in position by the clamping bars 25. Final delivery of water from the main launder to the distributing deck troughs

is brought about through the lateral ~~launders~~ 26. These members are preferably formed of cast metal and interlock with the frames 24 while communicating with the main launder. The troughs are secured by their outer ends to the horizontal

frame members while their inner ends are detachably secured to the frames 24. This is brought about by flanges 27 extending from the sides of the troughs 26 and adapted to slide into guides 28 cast integral with the frames 24. The ends of the troughs upon which the flanges are secured are opened and therefore communicate with the openings 29 through the frame members 24 and the boards of the launders. The guides 28 are diagonally disposed as well as the flanges 27 received thereby.

In assembly and operation of the present invention the specifications of the cooling tower are first determined and then the posts and horizontal frame members are cut. The various decks slats are also cut. The louvre sections 14 and 15 are cut and assembled to form the units shown in Figs 4

377277—5

11311

and 5. The material in this condition is then shipped to the point of assembly where the corner posts are erected and the horizontal frame members

as

A secured thereto and clearly shown in Fig 1 of the drawings. The various deck slats are then secured in position by suitable deck clips after which the side and corner louvre sections are secured to the horizontal frame members in the diagonal positions shown in Fig. 1. The cooling tower thus constructed may then be placed in operation by delivering water to the main launder. This water may then flow out through the lateral troughs and overflow onto the slats in the distributing

deck. The water may then circulate down over the various cooling and redistributing decks. It will thus be seen that by the construction here provided a cooling tower may be completely formed at the point of manufacture and its louvre units assembled after which the assembled units and the cut material may be delivered to the point of erection when the units, the frame and the various decks may be readily assembled, thus eliminating several days time in the course of assembly and dispensing with the assistance of several days labor.

While I have shown the preferred form of my invention as now known to me, it will be understood that various changes in the construction, combination and arrangement of parts may be made by those skilled in the art without departing from the spirit of the invention as claimed.

377277—6

Having thus described my invention, what I claim and

desire to secure by Letters Patent, is: (10-56,1-2)
A water cooling tower comprising a main frame,

1. A series of superimposed decks carried thereby and inclined louvre sections supported by the frame around said decks.

2. In a water cooling tower, a main frame, a pluralit. of superimposed perforated decks carried thereby and side and corner louvre sections adapted to be secured to the main frame around the decks to shield the same.

3. In a water cooling tower, a main frame comprising vertical corner posts, horizontal frame members carried thereby for the support of decks and unitary louvre sections adapted to be secured to said horizontal frame members.

4. In a water cooling tower, vertical corner posts, horizontal frame members secured thereto and adapted to intersect

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deck. The water may then circulate down over the various cooling and redistributing decks. It will thus be seen that by the construction here provided a cooling tower may be completely formed

1 6. A cooling tower comprising an upright frame structure,
2 ure, a plurality of superimposed cooling decks carried thereby
3 and outwardly and upwardly flaring louvres secured around the
4 frame in a protective position relative to said cooling decks,
5 said louvres comprising assembled sections adapted to be secured
6 to the frame to form a continuous louvre structure.

7
8 *See P 3*
9 7. A cooling tower comprising vertical corner posts, ^{horizontal}
10 horizontal frame members supported from the corner posts and
11 adapted to extend beyond the sides thereof ^{to form} forming a
12 rectangular frame with overhanging ends and louvre sections
13 supported in inclined positions between the various overhanging
14 ends of the horizontal frame members.

15 8. In a cooling tower, a pair of horizontal cooling members
16 pair of grooved end members and a plurality of louvre boards
17 disposed with their ends seated within the grooves of said end
18 members and adapted to combine to form a continuous wall

19 structure.

20 *11-12-30*

deck. The water may then circulate down over the various cooling and redistributing decks. It will thus be seen that by the construction here provided a cooling tower may be completely formed

1 guide ways formed as a part of said frame, distributing troughs
2 extending outwardly from the sides of the main trough, and means
3 carried thereby for interlocking with the guide ways of the main
4 frame and whereby the troughs will be held in communication with
5 the openings through the frame and the side walls of the main
6 trough.

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deck. The water may then circulate down over the various cooling and redistributing decks. It will thus be seen that by the construction here provided a cooling tower may be completely formed

In testimony whereof I have hereunto set my hand. ~~in the presence of two subscribing witnesses.~~
In signing, the first or given name should be written in full.

CARL F. BRAUN.

11315

Two witnesses sign here.

.....

.....



OATH.

State of California,
City and County of San Francisco,—ss.

Carl F. Braun, the above-named petitioner, being sworn (or affirmed), deposes and says that he is a citizen of the United States, and resident of City ~~in the~~ County of San Francisco, and State of California; that he verily believes himself to be the original first, and sole inventor of the improvements in WATER COOLING TOWERS, described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or patented in any country foreign to the United States on an application filed more than twelve months before this application, or in public use or on sale in the United States for more than two years prior to this ap-

plication; and that no application for patent on said improvements has been filed by him or his representatives or assigns in any country foreign to the United States.

In signing, the first or given name should be written in full.

CARL F. BRAUN.


Subscribed and sworn to before me this 15th day of April, 1920.

[Notary Seal]

Notary Public sign here.

GRAN B. DUFFY,

Notary Public in and for the City and County of San Francisco, State of California.

 Oath or affirmation must be made before a Notary Public, WHO MUST AFFIX HIS SEAL ON THE GOLD WAFER. If Notary has no seal, a certificate of the Judge or Clerk of the Court, showing that the Notary is qualified, must be attached. If the oath is taken before a Justice of the Peace, a certificate of the Judge or Clerk of the Court, showing that such Justice is qualified, must be attached.

2-260

E. D.

Div. 32

Room 278

Paper No. 2.

Address only
"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting
this application should give
the serial number, date of
filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

Washington.

Patent Office,

Jan. 15, 1921.

Mailed.

Jan. 15, 1921.

Charles E. Townsend,

Crocker Bldg.,

San Francisco, Calif.

Please find below a communication from the EXAMINER in charge of the application of Carl F. Braun, filed April 28, 1920, Ser. No. 377,277, for Water Cooling Towers.

R. F. WHITEHEAD.

Commissioner of Patents.

The section line "3-3," referred to in the brief description of Figure 3, is not found upon Figure 2.

Line 10 of page 2 is objectionable; the corner posts alone do not form the frame structures; members should be substituted for "structure" and vertical should be inserted before "frame." The term "Pins," as used in line 13 is inapt and should be eliminated, and "braeing" should be changed to braces. (The description in lines 22 and 23 is not in

accord with the drawings; the boards are not shown as overlapping in Figure 1.)

It is not understood what is meant by "At traverse" in line 24 of page 3. Explanation is requested.

Line 14 of page 4 is objectionable for the reason that there is no antecedent for "the lateral launders"; troughs should be substituted for "launders" to agree with lines 16 and 20. In line 22, "opened" should read open; and in line 24, "launders" should be iaunder.

In line 3 of page 5, as should be substituted for "and."

Claims 9 and 10 involve a separate and independent invention from claims 1 to 8, inclusive, being

377277—11

2

for a water distributing device which is applicable to other uses than that with a cooling tower and are examinable in another Division of this office under the class of Water Distribution as is shown in the following patents.

Burhorn, 1,182,635, May 9, 1916, 137-21.

Burhorn, 1,234,444, July 24, 1917, "

Claims 1 to 8 belong in Class 261 and are examinable in this division of the Office.

Division is therefore required between these two sets of claims. Because of this misjoinder of invention the claims are each rejected.

Attention is also called to the further state of the art shown in the following patents:

Schmidt,	693,625,	Feb. 18, 1902,	261-114
Hart	902,875,	Nov. 3, 1908,	261-113
Burhorn,	973,163,	Oct. 18, 1910,	261-108
Hart	1,228,207,	May 29, 1917,	261-114
M. B. G.			

JAY F. BANCROFT,
Examiner.
377277-12

U. S. Patent Office.

Aug. 9, 1921.

Division XXXII.

Mail Room.

Aug. 6, 1921.

U. S. Patent Office.

Div. 32, Room 278

Paper No. 3.

Serial No. 377277, Paper No. 3.

Amendment A.

Aug. 6, 1921.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

In the Matter of the Application of CARL F.

BRAUN,—WATER COOLING TOWERS.

Filed April 28, 1920,

Serial No. 377,277.

San Francisco, Cal., July 30, 1921.

Hon. Commissioner of Patents,

Sir:

In response to official action of January 15, 1921,
the above-entitled application is hereby amended as

follows:

Page 2, line 10, before "frame" insert "vertical."

Same line, change "structure" to "members."

Same page, line 10, change "bracing" to "braces."

Line 13, cancel "pins."

Page 3, line 24, change "traverse" to "intervals."

Page 4, line 14, cancel "launders" and insert "troughs."

Line 22, change "opened" to "open."

Line 24, change "launders" to "laundry."

Page 5, line 3, change "and" to "as."

Cancel claims 9 and 10.

REMARKS.

In view of the requirement for division in this case, claims 9 and 10 have been cancelled, although it is to be understood that the subject matter of these claims is not abandoned by this action.

The specification has been amended as suggested by the examiner, and an order forwarded herewith for the application of a section line on the drawings as required.

377277—13

A full and complete action on the case is now requested.

Respectfully Submitted,
CARL F. BRAUN,
By CHAS. E. TOWNSEND,

Attorney.

377277—14

Mail Room.

Aug. 6, 1921.

U. S. Patent Office.

U. S. Patent Office.

Aug. 26, 1921.

Division XXXII.

Div. 32, Room 278.

Serial No. 377277, Paper No. 4.

Letter to Dftsm.

C

Aug. 6, 1921.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

In the Matter of the Application of CARL F.
BRAUN,—WATER COOLING TOWERS.

Filed April 28, 1920,

Serial No. 377,277.

San Francisco, Cal., July 30, 1921.

Hon. Commissioner of Patents,

Sir:

Please instruct the office draftsman to amend the drawing in the above case as indicated in red ink on the accompanying print, and charge the cost of same to Dewey, Strong & Townsend.

Respectfully,

CARL F. BRAUN,

By CHAS. E. TOWNSEND,

Attorney.

Account. Amdt. to Exr. No print incl'd.

Not approved. No print received.

J. F. B., Exr.

Aug. 18, 1921.

147923(FCH)

August 25, 1921.

Mr. Charles E. Townsend,
Crocker Bldg.,
San Francisco, Calif.

Sir:

In the Matter of the Application of C. F.
Braun, Filed Apr. 28, 1920, for Water
Cooling Towers, Serial No. 377,277.

Referring to your letter of the 30th ultimo, re-
questing the Office to correct the drawing in the
above-entitled application as indicated in red ink
on the accompanying print, you are informed that
no print was received with your letter.

Very respectfully,

Chief Clerk.

Per

377277—16

Patent Office,
Sep. 19, 1921.
Mailed.

MBG/D 2-260

Div. 32

Room 278

Paper No. 5

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting
this application should give
the serial number, date of
filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE.

Washington.

Sept. 19, 1921.

Charles E. Townsend,
Crocker Bldg.,
San Francisco, Calif.

Please find below a communication from the EX-AMINER in charge of the application of Carl F. Braun, filed April 28, 1920, Ser. No. 377,277, for Water Cooling Towers.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Amendment of August 6, 1921, has been incorporated.

The drawings still await correction to obviate the objections made thereto in lines 1, 2, 8, 9 and 10 of the last official letter.

Claims 1, 2 and 3 are each rejected as failing to patentably distinguish from the patent to Hart, 1,228,207, of record.

The expression "in forming," in line 3 of claim 7, is objectionable and should be changed to read form.

Subject to such objection claims 4 to 8, inclusive, appear to be allowable as at present advised.

M. B. G.

JAY F. BANCROFT,

Examiner.

377277—17

Mail Room

Sept. 21, 1921.

U. S. Patent Office.

U. S. Patent Office.

Oct. 7, 1921.

Division XXXII.

Div. 32,

Room 278.

Serial No. 377,277, Paper No. 6.

Letter to Draftsm.

& B. Print.

Filed Sept. 21, 1921.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

In the Matter of the Application of CARL F.
BRAUN—WATER COOLING TOWERS.

Filed April 28, 1920.

Ser. No. 377,277.

San Francisco, Calif., September 16, 1921.

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

Please instruct the office draftsman to amend the drawing in the above case as indicated in red ink

on the accompanying print, and charge the cost of same to Dewey, Strong, Townsend & ~~Loftus~~.

Respectfully,

CARL F. BRAUN.

By CHAS. E. TOWNSEND,

Attorney.

Print returned by drafting div.

Enc.

377277—18

Fig. 2.

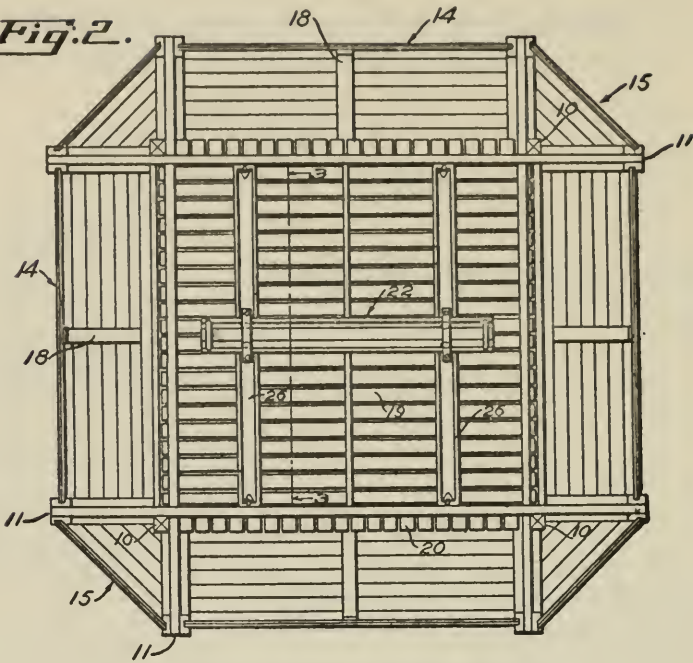


Fig. 3.

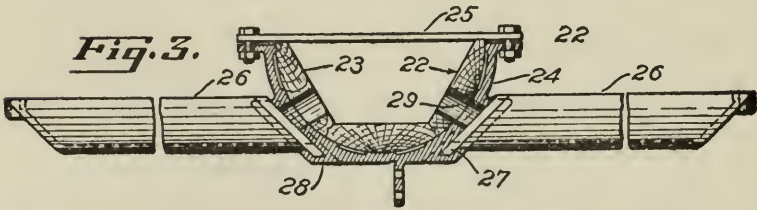
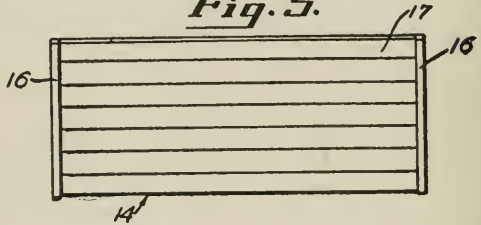


Fig. 4.



Fig. 5.



Patent Office,

Oct. 14, 1921.

Mailed.

Div. 32

Room 278

Paper No. 7

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting
this application should give
the serial number, date of
filing, title of invention, and
name of the applicant.

M. B. G. D.

2—260.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

Washington.

Oct. 14, 1921.

Charles E. Townsend,

Crocker Bldg.,

San Francisco, Calif.

Please find below a communication from the EX-AMINER in charge of the application of Carl F. Braun, filed April 28, 1920, Ser. No. 377,277, for Water Cooling Towers.

THOMAS E. ROBERTSON,

Commissioner of Patents.

The drawing in this case has been corrected by the Official Draftsman in accordance with applicant's instructions filed September 21, 1921.

This case still awaits action upon applicant's part in response to Official letter of September 19, 1921.

M. B. G.

JAY F. BANCROFT,

Examiner.

377277—20

Div. 32, Room 278.

Paper No. 8.

G.

Oct. 14/21. L. Serial No. 377,277, Paper No. 8.

Amendment B.

Filed Dec. 27, 1921.

Patent Office.

Dec. 28, 1921.

Div. No. XXXII.

Mail Room.

Dec. 27, 1921.

U. S. Patent Office.

DEPARTMENT OF THE INTERIOR,
IN THE UNITED STATES PATENT OFFICE.
In the Matter of the Application of CARL F.
BRAUN—WATER COOLING TOWER.

Filed April 28, 1920,

11316.

Serial No. 377,277.

San Francisco, Calif., Dec. 14, 1921.

Hon. Commissioner of Patents.

Washington, D. C.

Sir:

In response to the Office Actions of Sept. 19, 1921, and Oct. 14, 1921, the above-entitled application is hereby amended as follows:

Claims 1, 2 and 3, line 1 of each, before "water" insert —composite—.

Claim 1, line 2, change "decks" to —deck—, and insert —units— thereafter. Claim 1, line 3, cancel "sections" and insert —units—.

Claim 2, lines 2 and 4, change "decks" to —deck—, and insert —units— thereafter. Same claim, line 3, change "sections" to —units—.

Claim 3, line 2, change "corner" to —supporting—. Same claim, line 3, cancel "for the support" through to "sections" and insert/—deck units supported thereby in spaced superposed relation to each other and unitary louvers—.

Claim 4, line 1, change "corner" to —supporting—. Same claim, line 3, cancel "corner posts" and insert —corners of the tower—. Same claim, line 4, change "post" to —tower—.

Claim 5, line 2, cancel "corner posts" and insert —corners of the tower—. Same claim, line 4, change "post" to —tower—.

Claim 7, line 1, change "corner" to —frame—. Line 2, cancel "corner." Line 3, cancel "in forming" and insert —to form—.

1.

377277—21

the outermost posts to which they are secured, horizontal cooling decks supported upon said mem-

Add the following claims:

9. In a cooling tower structure a frame section ~~or~~ ^{beam}, comprising a plurality of vertical and horizontal members secured thereto, diagonal members carried thereby, said diagonal members supporting louvers.

10. In a composite cooling tower a plurality of frame sections comprising a pair of vertical posts carrying a plurality of spaced horizontal frame elements carried by said vertical members and overhanging the sides thereof, said elements serving as supports for horizontal cooling decks and diagonal louver panels.

11. A cooling tower structure comprising a plurality of ^{vertical} ~~beams~~, each formed of vertical supporting members, horizontally extending beams in superposed relation to each other and carried by the vertical members, said beams extending beyond the outermost vertical members, horizontal cooling decks carried on the beams and between the vertical members, and inclined louver panels secured by their upper ~~and~~ outer ends to the projecting ends of the horizontal beams and by their lower

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Chas E

Chas E

Chas E

Chas E

By CHAS. E. TOWNSEND,

His Attorney.

377277-23



11318

the outermost posts to which they are secured, horizontal cooling decks supported upon said members and between the posts, and diagonal ~~louver~~ panels secured by their upper ends and outer ends to the projecting ends of the horizontal members and secured at their lower and inner ends to the posts.

12. 44. In a cooling tower a louver unit comprising end members, and a plurality of ~~louver~~ boards disposed between said members and adapted to combine to form a continuous wall structure.

REMARKS.

Claims 1, 2 and 3 have been amended to emphasize the composite construction of applicant's tower. Heretofore in building cooling towers it has been common practice to cut the material at the point of erection. This has proven to be expensive, and for that reason applicant has provided a tower, sections of which are assembled in units, and which units may be readily connected to form a tower of the desired capacity. Claims 1, 2 and 3 are amended and submitted for reconsideration in view of the fact that the Hart invention does not contemplate such a structure. The newly added claims are undoubtedly patentable and further consideration of the case is now requested.

Respectfully submitted,

CARL F. BRAUN,

By CHAS. E. TOWNSEND,

His Attorney.

Mail Room.

Jul. 24, 1922.

U. S. Patent Office.

U. S. Patent Office.

Jul. 25, 1922.

Division XXXII.

Div. 32, Room 278.

Paper No. 10.

DEPARTMENT OF THE INTERIOR.

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of CARL F.

BRAUN—WATER—COOLING TOWERS.

Filed April 28, 1920,

Ser. No. 377,277.

11319

Serial No. 377,277 Paper No. 10.

Amendment C.

Filed July 24, 1922.

San Francisco, Calif., July 18, 1922.

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

In response to the Office Action of April 4, 1922, the above-entitled application is hereby amended as follows:

Rewrite claims 1 and 2 as follows:

1. A water-cooling tower comprising a main frame formed by vertical posts carrying horizontally extending frame members, said frame members projecting beyond the ends of the posts, decks

per D ~~deck units~~ A adapted to be supported by the por-

tions of the frame members occurring between
louvers

the posts and inclined louver units A supported by
the outwardly projecting ends of said frame mem-
bers.

2. A composite water-cooling tower comprising
a main frame formed by vertical posts disposed
in spaced relation to each other, horizontal frame
members carried by the posts and forming super-
posed rectangular supporting frames, said frame
members intersecting each other at the posts and
extending therebeyond, deck units adapted to be
disposed upon the portions of the frame between
the posts, and inclined louver units secured to the
outwardly projecting ends of the frame members.

REMARKS.

Claims 1 and 2 have been amended in an effort to
more clearly set forth the patentable differences
between the reference to Hart and applicant's
structure. It is now believed that these claims, as
well as those previously allowed, are in condition

377277—26

1.

11320

for final allowance, which is requested.

The first paragraph of the Examiner's letter
has been noted and an order is attached hereto
requesting the drawing to be amended to show
the overlapping arrangement of the boards.

Respectfully submitted,

CARL F. BRAUN,

By CHAS E. TOWNSEND,

His Attorney.

No Enclosures.

377277—27

U. S. Patent Office,

Oct. 18, 1922.

Mailed.

2—260.

Div. 32

Room 278

Paper No. 11

Address only

All communications respecting
this application should give
the serial number, date of
filing, title of invention, and
name of the applicant."The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.
Washington.

Oct. 18, 1922.

Charles E. Townsend,

Crocker Bldg.,

San Francisco, Calif.,

Please find below a communication from the
EXAMINER in charge of the application of Carl
F. Braun, filed April 28, 1920. Ser. No. 377,277,
for Water Cooling Towers.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Amendment of July 24, 1922, has been incor-
porated.

Claims 1' and 2, presented by such amendment,
appear to be allowable as at present advised.

Claims 3 to 8, inclusive, and claims 10 and 13
stand allowed.

No response has been given to the objections to
claims 9, 11, 12 and 14, in the second page of the
last Official letter. Such objections are therefore
repeated. When the objections have been over-
come, and the drawings have been corrected as

proposed by applicant, these claims will be further considered upon their merits.

M. B. G.

JAY F. BANCROFT,

Examiner.

377277—28.

Application Room,

Nov. 24, 1922.

U. S. Patent Office.

Serial No. 377,277. Paper No. 12.

Amendment D.

Filed Nov. 24, 1922.

U. S. Patent Office,

Nov. 24, 1922.

Division XXXII.

Div. 32, Room 278,

Carl F. Braun,

Water Cooling Towers,

Filed April 28, 1920,

Serial No. 377,277.

Washington, D. C., November 22, 1922.

Honorable Commissioner of Patents,

Sir:—

In response to the official action of October 18, 1922, the above-entitled application is hereby amended as follows:

Claim 1, line 4, cancel "deck units" and insert —decks—; line 6, cancel "louver units" and insert —louvers—.

Claim 9, lines 1 and 2, cancel "or bent."

Claim 11, line 2, cancel "bents" and insert —sections—.

Claim 12, line 4, cancel "bents" and insert —sections—.

Claim 13, line 9, cancel "louver."

Claim 14, line 2, cancel "louver."

REMARKS.

The claims in this case have been amended, as suggested by the Examiner's letter, and it is now understood that the case is in condition for final action. The language of claim 1 has been slightly changed in order to set forth the fact that the specific frame structure is designed to carry decks and louvers, which in some cases might not be so called units. In view of the references of record it is believed that the claim as now amended should be allowed.

377277—29

It is understood from the Examiner's letter that the drawings are in course of correction and it is, therefore, believed that the entire case is now in condition to receive final action.

Respectfully submitted,

CHAS. E. TOWNSEND.

377277—30

Mail Room,
Nov. 24, 1922.
U. S. Patent Office.

Account.
C.
1 enc.

Serial No. 377,277. Paper No. 13.
Letter to Dftsman, & Blue Print. Filed Nov. 24,
1922.

U. S. Patent Office.
Dec. 5, 1922.
Division XXXII.
Div. 32, Room 278,
Carl F. Braun,
Water Cooling Towers,
Filed April 28, 1920.
Serial No. 377,277.

Washington, D. C., November 24, 1922.
Honorable Commissioner of Patents,
Sir:

The Chief Draftsman is respectfully requested to correct the drawing in the above-entitled case, as indicated in red ink on the attached print, charging the cost of the same to the account of Dewey, Strong, Townsend & Loftus.

Respectfully,
CHAS. E. TOWNSEND,
Attorneys for Applicant.

O. K.
M. B. G.
11/24/22.

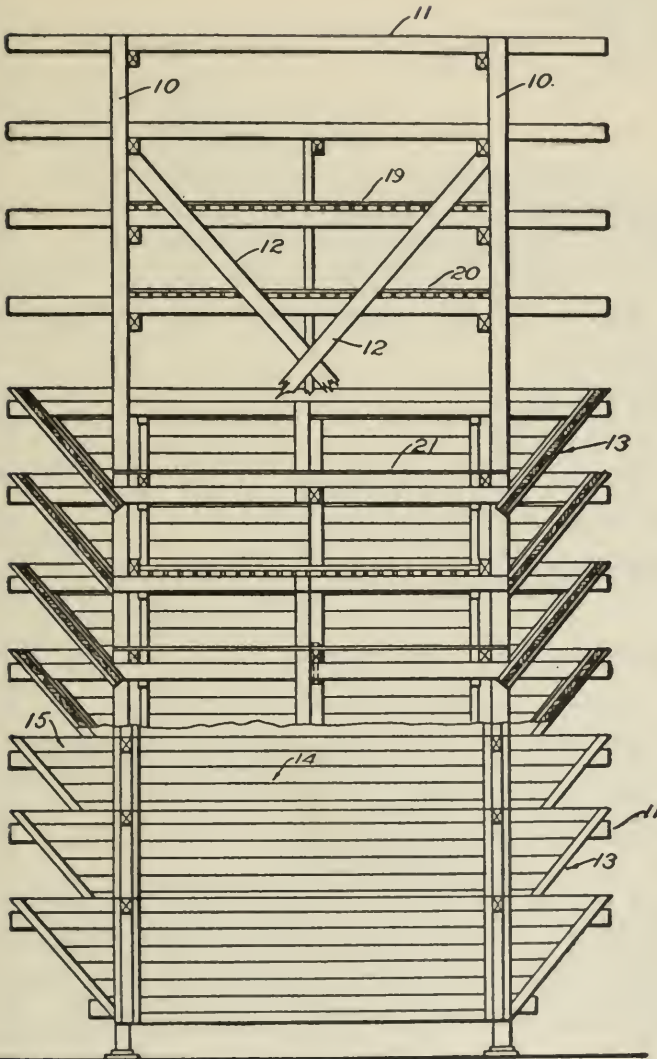


Fig. 1.

INVENTOR
CARL F. BRAUN.

BY
Chas. E. Townsend.

ATTORNEY

U. S. Patent Office.

Dec. 6, 1922.

Division XXXII.

Serial No. 377,277, Paper No. 14.

Amendment E.

Filed December 6, 1922.

Washington, D. C., December 6, 1922.

DEPARTMENT OF THE INTERIOR.

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of CARL F.
BRAUN.

Serial No. 377,277,

Filed April 28, 1920,

Entitled Water Cooling Towers.

Honorable Commissioner of Patents,

Washington, D. C.

Sir:

Supplemental to amendment of December 14,
1922.

Cancel claims 9 and 12, renumbering the remain-

ing claims in their order.

REMARKS:

After a personal interview with the Examiner, and in view of his rejection, the foregoing claims have been cancelled. It is understood that this places the case in condition for allowance which is requested.

Respectfully submitted,

CARL F. BRAUN.

By CHAS. E. TOWNSEND,

His Attorney.

Patent Office,
Dec. 6, 1922.
Mailed.

2—181

Serial No. 377,277

Address only.

"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.
Washington.

Div. 32.
DeC.

December Six, 1922.

Carl F. Braun,
San Francisco, Calif.

Sir:

Your APPLICATION for a patent for an IMPROVEMENT in

Water Cooling Towers

filed April 28, 1920, has been examined and ALLOWED. (12 claims.)

The final fee, TWENTY DOLLARS, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent on this application will be withheld, unless renewed with an additional fee of \$20, under the provisions of Section 4897, Revised Statutes.

The office delivers patents upon the day of their date, and on which their term begins to run. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will require about four weeks, and

Uncertified Checks Will Not Be Accepted.

In Remitting the Final Fee Give the Serial Number at the Head of This Notice.

such work will not be undertaken until after payment of the necessary fee.

When you send the final fee you will also send, **DISTINCTLY AND PLAINLY WRITTEN**, the name of the **INVENTOR**, **TITLE OF INVENTION**, **AND SERIAL NUMBER AS ABOVE GIVEN**, **DATE OF ALLOWANCE** (which is the date of this circular), **DATE OF FILING**, and, if assigned, the **NAMES OF THE ASSIGNEES**.

If you desire to have the patent issued to **ASSIGNEES**, an assignment containing a **REQUEST** to that effect, together with the **FEE** for recording the same, must be filed in this office on or before the date of payment of final fee.

After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of **TEN CENTS EACH**. The money should accompany the order. Postage stamps will not be received.

Final fees will **NOT** be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

Respectfully,
THOMAS E. ROBERTSON,
Commissioner of Patents.

Charles E. Townsend,
Crocker Bldg.,
San Francisco, Calif.

\$20 received as the final fee in the application of C. F. Braun, Serial No. 377,277, for Water Cooling Tower, applied from a composite letter No. 220,347, received Dec. 21/22, from Dewey et al., which is on file in the Chief Clerk's room.

W. W. MORTIMER,
Chief of Issue and Gazette Division.

377277—36

M. S.

Jan. 16, 1923.

1,442,784.

C. F. BRAUN.
WATER COOLING TOWER.
FILED APR. 28, 1920.

2 SHEETS—SHEET 1

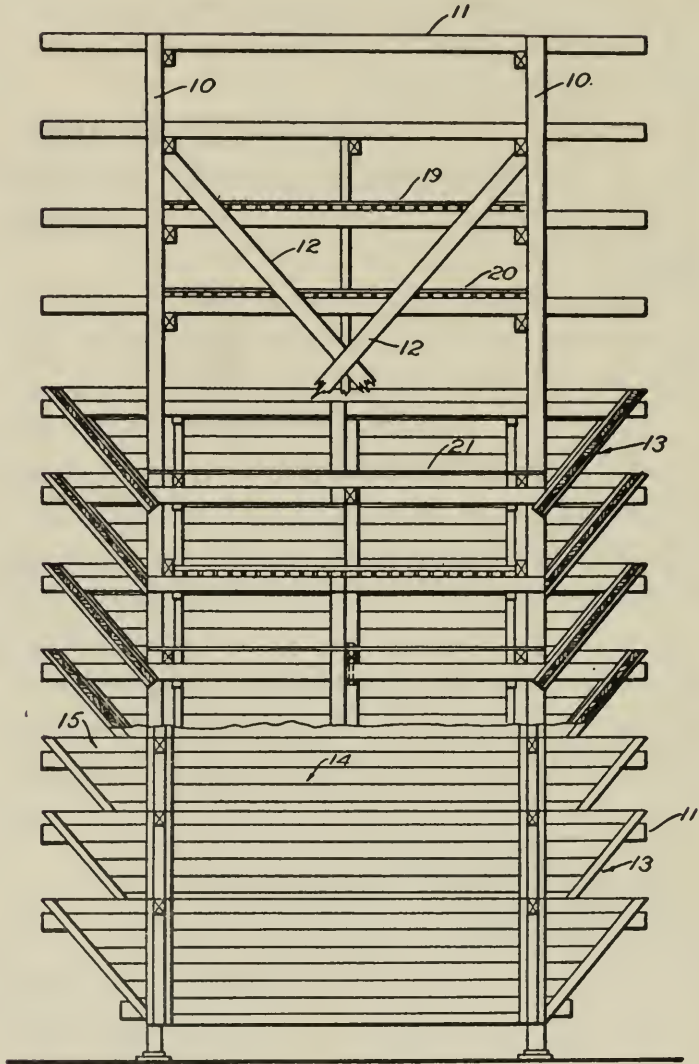


Fig. 1.

INVENTOR
CARL F. BRAUN.

BY *Chas. E. Fournant.*

ATTORNEY

Jan. 16, 1923.

1,442,784.

C. F. BRAUN.
WATER COOLING TOWER.
FILED APR. 28, 1920.

2 SHEETS—SHEET 2.

Fig. 2.

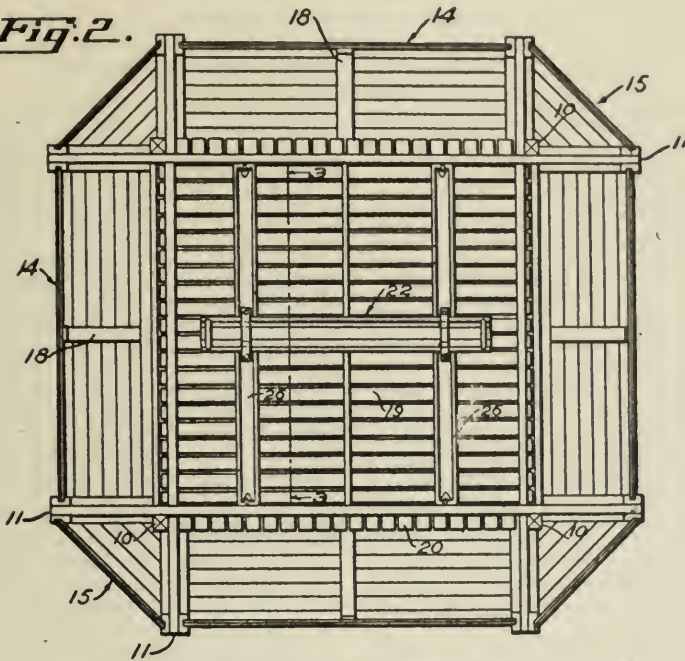


Fig. 3.

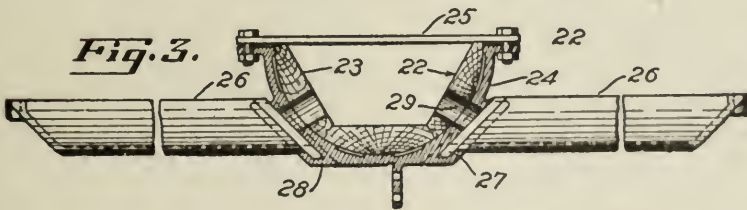
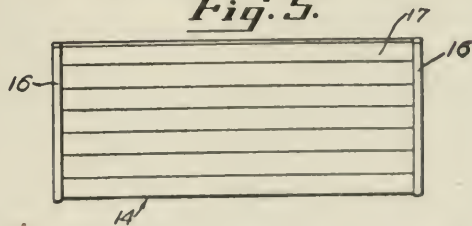


Fig. 4.



Fig. 5.



INVENTOR
CARL F. BRAUN.

BY *Chas. E. Trumbull*

ATTORNEY

Patented Jan. 16, 1923.

1,442,784

UNITED STATES PATENT OFFICE.

CARL F. BRAUN, OF SAN FRANCISCO, CALIFORNIA.

WATER-COOLING TOWER.

Application filed April 28, 1920. Serial No. 377,277.

To all whom it may concern:

Be it known that I, CARL F. BRAUN, a citizen of the United States, residing at city and county of San Francisco and State of California, have invented a new and useful Improvement in Water-Cooling Towers, of which the following is a specification.

This invention relates to water cooling towers.

It is the principal object of the present invention to provide a water cooling tower of the atmospheric type which is of simple construction and so designed as to be formed from composite units formed at the plant and adapted to be readily assembled at the point of installation, thereby insuring that the erection process may be rapidly carried on and that the cooling tower when finished will be of a predetermined standard design.

The present invention contemplates the use of a main frame and a plurality of side and corner units adapted to be assembled relative to the main frame in a manner to produce a cooling tower of any predetermined capacity.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a view in side elevation showing a tower of the present construction with parts broken away to more clearly show the structural details.

Fig. 2 is a view in plan showing the completely assembled tower.

Fig. 3 is an enlarged view in section through the feed and distributing troughs as seen in the line 3—3 of Fig. 2.

Fig. 4 is a view in elevation showing one of the corner units.

Fig. 5 is a view in elevation showing one of the side units.

The present invention is particularly concerned with a cooling tower of the general type shown in my Patent No. 1,334,515, issued March 23, 1920, and entitled "Water cooling tower." In that patent, however, the cooling tower is gradually built up from slat and frame members while in the present instance the frame is originally built, thereafter the louvers are formed from corner and side louvre sections built at the manufacturing plant and assembled at the erection locality.

In the drawings, 10 indicates vertical corner posts forming the vertical frame members upon which horizontal frame members 11 are supported. The corner posts and

frame members are here indicated as being formed of wood. Suitable diagonal braces 12 are used to secure the corner posts in rigid relation to each other while the horizontal frame members 11 are adapted to cross each other at the posts and to be secured thereto. Attention is directed to the fact that the horizontal members project a considerable distance from the vertical faces of the posts, thus forming out bearing supports for the louvres 13. These louvres are of composite construction and comprise side louvre sections 14, and corner sections 15. Each of the sections consists of grooved end rails 16 into which the opposite ends of the louvre boards 17 project. It is preferable that the louvre boards shall overlap each other at their joints, thereby providing a substantially water tight wall which will prevent leakage of the water in the cooling tower and also shield the central portion of the tower from the action of wind. The louvre walls extend upwardly and outwardly at angles of substantially 45° while the sections are bolted by their lower edges to the horizontal frame members 11 at points near the posts 10 and by their upper edges to the outer ends of the horizontal frame members, thus being supported in their inclined positions. In this manner the upper edges of the louvre walls will conceal the lower edges of the super adjacent walls, thus forming a complete wind break while permitting free circulation of air between the various walls. In the drawings the cooling tower is formed from single sections 14 and 15, the sections 14 being secured along the sides of the tower and between the horizontal frame members while the sections 15 are secured diagonally across the corners of the tower and between the projections of the horizontal frame members crossing at the posts. If the length of section 14 is excessively great intermediate boards 18 may be used to secure the various louvre boards 17 in position and prevent them from sliding or sagging.

Mounted upon the horizontal frame sections and within the area defined by these sections and the corner posts are a plurality of superimposed decks. The uppermost of these decks is a distributing deck 19 secured at the top of the frame and formed of a plurality of slats extending parallel to each other and disposed in spaced relation to each other. This construction is more completely disclosed in my patent

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1,442,784

tioned in the foregoing specification. A plurality of frame members beneath the distributing deck are cooling decks 20. These decks are formed in a similar manner to that of the distributing deck and are arranged with their slats extending in the same general direction as the slats of the distributing deck. At intervals throughout the height of the tower redistributing decks 21 are provided. The redistributing decks are also formed in the manner previously described while their slats lie at right angles to the slats of the cooling decks. This will permit the proper overflow of the water onto the various cooling decks and will further insure that the water will be redistributed to be uniformly apportioned to the various decks, even though the tower is in operation in a high wind.

The delivery and initial distribution of the water is made from a main launder 22 which is supported above the first distributing deck 19 and is formed as shown in Fig. 3. This launder comprises a plurality of longitudinally extending boards 23 which are tongued and grooved to form a substantially water tight trough. These launder boards are held together by frame members 24. The frames are formed with a substantially accurate semi-circular seat adapted to conform to the outer curved faces of the boards and to provide a support for the boards when they are secured in position by the clamping bars 25. Final delivery of water from the main launder to the distributing deck is brought about through the lateral troughs 26. These members are preferably formed of cast metal and interlock with the frames 24 while communicating with the main launder. The troughs are secured by their outer ends to the horizontal frame members while their inner ends are detachably secured to the frames 24. This is brought about by flanges 27 extending from the sides of the troughs 26 and adapted to slide into guides 28 cast integral with the frames 24. The ends of the troughs upon which the flanges are secured are open and therefore communicate with the openings 29 through the frame members 24 and the boards of the launder. The guides 28 are diagonally disposed as well as the flanges 27 received thereby.

In assembly and operation of the present invention the specifications of the cooling tower are first determined and then the posts and horizontal frame members are cut. The various deck slats are also cut. The louvre sections 14 and 15 are cut and assembled to form the units shown in Figs. 4 and 5. The material in this condition is then shipped to the point of assembly where the corner posts are erected and the horizontal frame members secured thereto as clearly shown in Fig. 1 of the drawings.

The various deck slats are then secured in position by suitable deck clips after which the side and corner louvre sections are secured to the horizontal frame members in the diagonal positions shown in Fig. 1. The cooling tower thus constructed may then be placed in operation by delivering water to the main launder. This water may then flow out through the lateral troughs and overflow onto the slats in the distributing deck. The water may then circulate down over the various cooling and redistributing decks. It will thus be seen that by the construction here provided a cooling tower may be completely formed at the point of manufacture and its louvre units assembled after which the assembled units and the cut material may be delivered to the point of erection when the units, the frame and the various decks may be readily assembled, thus eliminating several days' time in the course of assembly and dispensing with the assistance of several days' labor.

While I have shown the preferred form of my invention as now known to me, it will be understood that various changes in the construction, combination and arrangement of parts may be made by those skilled in the art without departing from the spirit of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. A water-cooling tower comprising a main frame formed by vertical posts carrying horizontally extending frame members, said frame members projecting beyond the ends of the posts, decks adapted to be supported by the portions of the frame members occurring between the posts and inclined louvers supported by the outwardly projecting ends of said frame members.

2. A composite water-cooling tower comprising a main frame conformed by vertical posts disposed in spaced relation to each other, horizontal frame members carried by the posts and forming superposed rectangular supporting frames, said frame members intersecting each other at the posts and extending there beyond, deck units adapted to be disposed upon the portions of the frame between the posts, and inclined louvre units secured to the outwardly projecting ends of the frame members.

3. In a composite water cooling tower, a main frame comprising vertical supporting posts, horizontal frame members carried thereby for the deck units supported thereby in spaced superposed relation to each other and unitary louvers adapted to be secured to said horizontal frame members.

4. In a water cooling tower, vertical supporting posts, horizontal frame members secured thereto and adapted to intersect each other at the corners of the tower, said sets of

intersecting frame members being distributed throughout the height of the tower and louvre sections diagonally disposed to the posts and secured to the horizontal frame members.

5 5. In a cooling tower corner posts, sets of horizontal frame members adapted to intersect each other at the corners of the tower and to project therefrom, said sets of frame members being arranged throughout the height of the tower and assembled louvre sections secured between the outwardly projecting frame members at the sides and corners thereof and in diagonal inclined positions.

15 6. A cooling tower comprising an upright frame structure, a plurality of superimposed cooling decks carried thereby and outwardly and upwardly flaring louvres secured around the frame in a protective position relative to said cooling decks, said louvres comprising assembled sections adapted to be secured to the frame to form a continuous louvre structure.

25 7. A cooling tower comprising vertical frame posts, horizontal frame members supported from the posts and adapted to extend beyond the sides thereof to form a rectangular frame with overhanging ends and louvre sections supported in inclined positions between the various overhanging ends of the horizontal frame members.

30 8. In a cooling tower, a louvre section comprising a pair of grooved end members and a plurality of louvre boards disposed with their ends seated within the grooves of said end members and adapted to combine to form a continuous wall structure.

40 9. In a composite cooling tower a plurality of frame sections comprising a pair of vertical posts carrying a plurality of spaced horizontal frame elements carried by said

vertical members and overhanging the sides thereof, said elements serving as supports for horizontal cooling decks and diagonal louver panels.

10. A cooling tower structure comprising a plurality of sections, each formed of vertical supporting members, horizontally extending beams in superposed relation to each other and carried by the vertical members, said beams extending beyond the outermost vertical members, horizontal cooling decks carried on the beams and between the vertical members, and inclined louver panels secured by their upper and outer ends to the projecting ends of the horizontal beams and by their lower and inner ends to the horizontal beams near the vertical members.

11. In a water cooling tower a plurality of frame sections comprising two or more posts, a plurality of horizontal frame members secured transversely of said posts and with their ends projecting from the outer faces thereof, longitudinally extending horizontal members securing the posts in vertical aligned positions, the ends of said members projecting beyond the outermost posts to which they are secured, horizontal cooling decks supported upon said members and between the posts, and diagonal panels secured by their upper and outer ends to the projecting ends of the horizontal members and secured at their lower and inner ends to the posts.

12. In a cooling tower a louver unit comprising end members, and a plurality of boards disposed between said members and adapted to combine to form a continuous wall structure.

In testimony whereof I have hereunto set my hand.

CARL F. BRAUN.

2—421

1920

CONTENTS :

1. Application O. K. papers.
2. Rejection, Jan. 15, 1921.
3. Amdt. A, Aug. 6, 1921.
4. Letter to Dftsm., Aug. 6, 1921.
5. Rejection, Sept. 19, 1921.
6. Letter to Dftsm. & Pr., Sept. 21, 1921.
7. Letter, Oct. 14, 1921.
8. Amdt. B, Dec. 27, 1921.
9. Rejection, April 4, 1922.
10. Amdt. C, July 24, 1922.
11. Letter, Oct. 18, 1922.
12. Amdt. D, Nov. 24, 1922.
13. Letter to Dftsm. & Blue Print, Nov. 24, 1922.
14. Amdt. E, Dec. 6, 1922.
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DEFENDANT'S EXHIBIT "DD."

[Endorsed]: No. 923. U. S. Dist. Court, Nor. Dist. Calif. Deft. Exhibit "DD." Filed 11/28/23. Maling, Clerk.

No. 4221. United States Circuit Court of Appeals for the Ninth Circuit. Filed Mar. 18, 1924. F. D. Monckton, Clerk.

2—390.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come,
GREETING:

~~THIS IS TO CERTIFY~~ that the annexed is a true copy from the records of this office of the File-wrapper and Contents, in the matter of the

Letters Patent of

Barton H. Coffey, Assignor to

The Mitchell-Tappen Company,

Number 1,010,020, Granted November 28, 1911.
for

Improvement in Devices for Cooling Liquids.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this 12th day of February, in the year of our Lord, one thousand, nine hundred and twenty-three and

of the Independence of the United States of America the one hundred and forty-seventh.

[Seal]

CARL TWINING,
Acting Commissioner of Patents.

1911.

DIV. 32. (EX'R'S BOOK) 139—4.

NUMBER (Series of 1900),

629,214 Patent No. 1010020.

Name—Barton H. Coffey, Assor. to the Mitchell-Tappen Company, of New York, N. Y., a Corp. of N. Y.

of—Elizabeth,

County of

State of—New Jersey

Invention—Device for Cooling Liquids,

Original

Renewed

{	Petition	May 24, 1911	, 191
	Affidavit	“ “, 1911	, 191
	Specification	“ “, 1911	, 191
	Drawing, 2,	“ “, 1911	, 191
	Model or Specimen	, 191	, 191
	First Fee Cash \$15.	May 24, 1911	, 191
	“ “ Cert.	, 191	, 191
	Appl. filed complete	May 24, 1911	, 191

Examined—Jay F. Bancroft, Exr.

Sept. 29, 1911

Allowed—M. M. Mortimer,

For Commissioner

For Commissioner.

Notice of Allowance Oct. 7, 1911, 191

Final Fee Cash \$10, Oct. 28, 1911, 191

“ “ Cert. 191, 191

Division of App., No. filed 1911.
PARTS OF APPLICATION FILED.

Patented—November 28, 1911.

Attorney—Edward Van Winkle, #90 West St.,
New York, N. Y.

Associate Attorney

(No. of Claims Allowed—6.)

Title as Allowed—Device for Cooling Liquids.

EDWARD VAN WINKLE,

West Street Building,

NEW YORK.

Cedar & West Streets.

Consulting Patent Engineer,

\$15. Received.

C.

May

23.

1911.

Ck.

Chief Clerk, U. S. Patent Office.

May 23, 1911.

Commissioner of Patents,

Sir:

Enclosed herewith find specification and two sheets of drawings for application for patent in alleged improvements for cooling device for liquids, Barton H. Coffey, applicant, together with check to your order for the sum of \$15.00 covering application fee. There is also enclosed a set of brown prints taken from the drawings.

Very truly yours,

EDW'D VAN WINKLE,

Registered Attorney No. 6122.

Commissioner of Patents,

Washington, D. C.

629214—1

Mail Room.

May

24,

1911.

U. S. Patent Office.

4169.

U. S. Patent Office.

May 26, 1911.

Division XXXII.

Serial No. 629,214. Paper No. 1.
Application.

PETITION.

Filed May 24, 1911.

To THE COMMISSIONER OF PATENTS:

Your petitioner, BARTON H. COFFEY, a citizen of the United States, residing in Elizabeth, County of Union, State of New Jersey, whose Post Office address is 149 Broadway, in the Borough of Manhattan, City, County and State of New York, prays that Letters Patent of the United States may be granted to him as sole inventor for Improvements in DEVICE FOR COOLING LIQUIDS, as set forth in the annexed specifications, and he hereby appoints,

EDWARD VAN WINKLE,

West Street Building, 90 West Street, Borough of Manhattan, City, County and State of New York, (Registration Number 6 122), his attorney, with full powers of substitution and revocation, to prose-

cute this application, to make alterations and amendments therein, to receive the Patent and to transact all business in the Patent Office connected herewith.

Dated this 23d day of May, A. D. 1911.

[Seal]

BARTON H. COFFEY.

1.

629214—2

TO ALL WHOM IT MAY CONCERN:

¶ Be it known that I, BARTON H. CUFFY, residing in Elizabeth, Union County, State of New Jersey, have invented certain new and useful improvements in a DEVICE FOR COOLING LIQUIDS, of which the following is a specification.

¶ My invention relates to improvements for cooling liquids by natural aeration and evaporation, caused by separating in small drops or streams which are then ^{brought} into contact with the air; and more particularly confined to an improved construction of drip decks used for separating the liquid into drops.

¶ The foregoing and other features of my invention will now be described in connection with the accompanying sheets of drawings forming part of this specification, in which I have represented the device in its preferred form, after which I shall point out more particularly, in the claims, those features which I believe to be new and of my own invention.

¶ FIGURE 1 is a perspective view of my cooling tower. FIGURE 2 is a section of the drip bars employed by me. FIGURE 3 is a modification of the drip bars shown in FIGURE 2. FIGURE 4 is a section, A-A FIGURE 1, of the drip deck employed, showing fastening pins 10 at the end of each bar. FIGURE 5 is a section, B-B FIGURE 1, of the drip deck showing its fastenings on the ends to the general frame-work. FIGURE 6 is a plan of each deck.

¶ The frame-work of my tower consists of uprights 1 with decks 2 and collecting pan or tank 3 at the bottom. The liquid to be cooled is ^{brought} to the supply pipe 4 and distributed over the top deck in a manner familiar to cooling towers. The decks are formed of drip bars 5 which may be of any desired shape and are splined together with splines 7, said splines being shorter than the length of the bar; on each

end of these bars splines 9, longer than splines 7, connect
the bars together. The bars are each individually held to
the horizontal frame-work 2 by screws or bolts 10. *and are not attached together* The outer
members are splined together with continuous splines 11. It
will, therefore, be readily understood that each deck is
built solid for a certain portion all around the edge of the
tower, the middle portion being open, as at 12, between the
short splines 7 and the ~~middle~~ *middle* bars 6. *while I do not limit*
myself to the bars shown in section in FIGURES 2 and 3, these
bars are in the preferred forms and any deviation in shape
may be made without departing from the salient features of my
invention and I intend the claims to cover all such modifica-
tions as naturally fall within the lines of invention.

¶ The operation of my device is as follows:

The liquid to be cooled is discharged and distributed
over the top of the tower by means of the supply pipe 4 which
will then drip through the spaces 12 on to the deck below and
will in this manner pass through the successive decks of the ser-
ies to the collecting pan 3.

¶ Having thus fully described my invention, what I
desire to secure by Letters Patent of the United States is:

62511-
4

B
a
CLAIM 1. In a device of the class described ^{and} *mounted in a frame*
a deck consisting of ~~parallel bars~~ *separately fastened to the frame at each end* the adjacent bars ^{and} *loosely*
~~being~~ *spined* together at intervals ^{throughout} *their entire*
length.

172
a
CLAIM 2. In a device of the class described *separately framed to a member on each end*
a deck consisting of parallel drip bars ^{with} *space in be-*
~~ween~~ *and loose between* the bars, short spines ^{connecting} *the bars at in-*
tervals.

10
a
~~CLAIM 3.~~ CLAIM 3. In a device of the class described
a deck consisting of drip bars ^{securely} *fastened at each*
end, with space in between the bars, the adjacent bars
being ^{spined} *loosely* together at intervals ^{throughout} *their entire*
length.

15
CLAIM 4. A drip bar of a rectangular section
having a curved top, two grooves on the bottom and a
groove on each of the vertical sides.

a
20
~~CLAIM 5.~~ CLAIM 5. In a device of the class described
a deck consisting of drip bars individually fastened at
each end, with space in between the bars, the adjacent
bars being ^{spined} *loosely* together at intervals ^{throughout} *their*
entire length.

dda²
chilo
a7 ✓

copy 14
5

Sworn to and subscribed before me this 23d day
of May, A. D. 1911.

[Seal]

JOSEPH FIELL,
Notary Public, New York County.

5.

629214—6

Fig. 1,

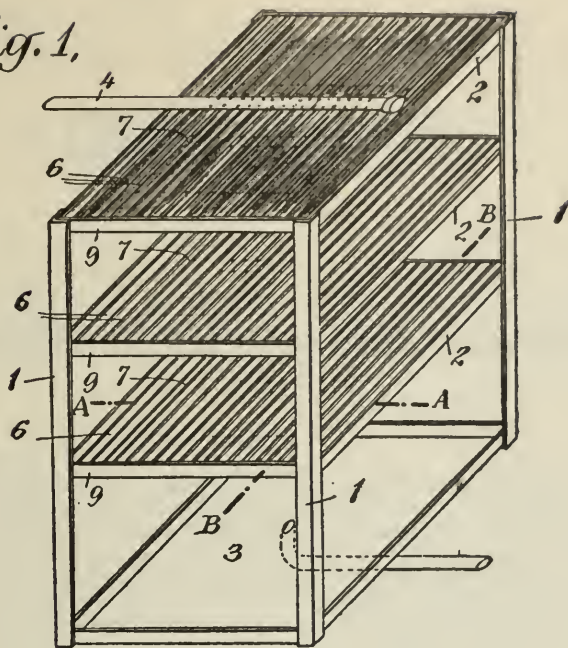


Fig. 2,



Fig. 3,



WITNESSES:

M. M. Faulstich
 Marie C. McLean

INVENTOR

Barton H. Coffey

BY
 Edward Paulinitske
 HIS ATTORNEY

629214-7

Fig. 4,

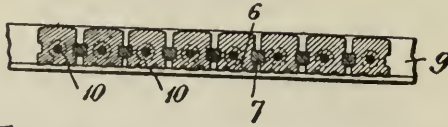


Fig. 5,

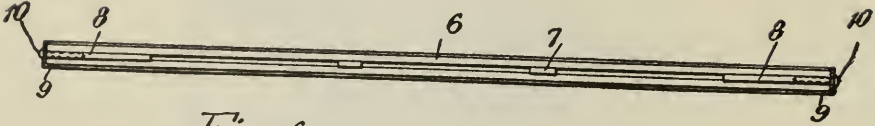
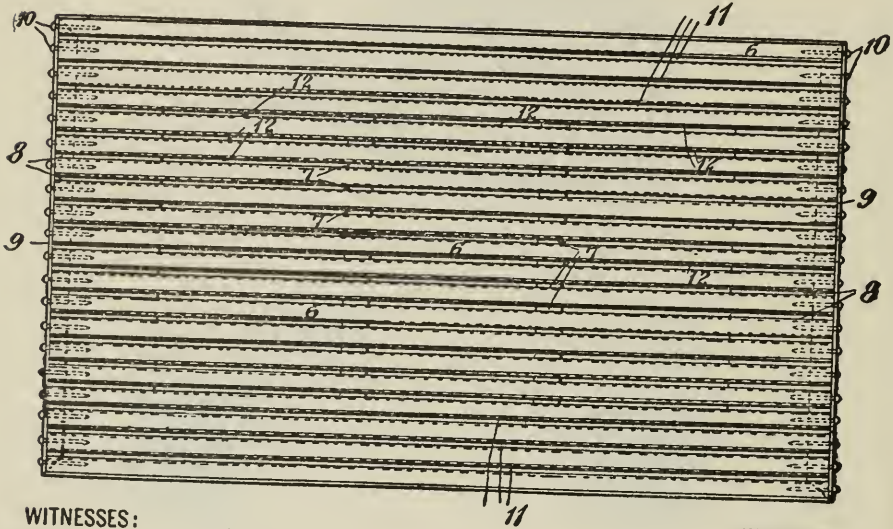


Fig. 6,



WITNESSES:

M. M. Sanchez
 Marie C. N. S. San

INVENTOR

Barton H. Coffey

BY
 Edward Paulerinkly
 ATTORNEY

629214-8

U. S. Patent Office,
June 24, 1911.
Mailed.

2—260

EO

Div. 32

Room 278

Paper 2

Address only

“The Commissioner of Patents,
Washington, D. C.”

All communications respecting
this application should give
the serial number, date of fil-
ing, and title of invention.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.
Washington.

June 24, 1911.

Barton H. Coffey,
c/o Edward Van Winkle,
90 West Street, New York, N. Y.

Please find below a communication from the
EXAMINER in charge of your application, for
“Device for Cooling Liquids,” filed May 24, 1911,
Serial No. 629,214.

E. B. MOORE,
Commissioner of Patents.

In line 13 of page 2, “one” should be canceled,
and in line 14, the word “drawing” should be
pluralized.

In the brief description of Fig. 4, cross should
be inserted before “section”; and in the descrip-
tion of Fig. 5, longitudinal should be inserted be-
fore “section.” In line 29, page 2, “brot” should
be brought. In line 13 of page 3, my should be in-
serted before “invention.”

Claims 1, 2, 3 and 5 are each rejected as being without invention in view of the state of the art shown in the following patents:

Fisher et al.,	649,573,	May	15,	1900,	(62—2) ;
Cooper	140,680	July	8,	1873,	(20—35) ;
Southwick	303,334,	Aug.	12,	1884,	(20—78) ;
Andrews	544,204,	Aug.	6,	1895,	(20—78) ;
Mills	463,702,	Nov.	24,	1891,	(20—78).

Fischer shows decks in a water cooling tower consisting of parallel drip bars slightly spaced apart.

Southwick shows a series of bars spaced apart by blocks to allow water to drip between the bars, Andrews shows bars provided with grooves in their sides and spaced apart by splines fitting in the grooves. Cooper shows the use of splines, for holding together a series of bars, and Mills shows that it is old to provide spacing blocks at intervals throughout the length of a series of bars. In view of the various uses of splines and spacing blocks,

629214—9

#629,214—2.

as shown in the above patents, no invention would be involved in providing the bars of Fischer with grooves and splines at intervals along the length of the bars.

The description should be amended to set forth the function or advantage of the specific means for spacing the bars apart as set up in the claims.

Claim 4 appears to be allowable, as at present advised.

M. B. G.

JAY F. BANCROFT,

Examiner.

629214—10

Paper 3—2 sheets.

4174.

Serial No. 629,214, Paper No. 3.

Amendment A.

Filed July 8, 1911.

Mail Room,
July 8, 1911.

U. S. Patent Office.

U. S. Patent Office.

Jul. 10.

Division XXXII.

AMENDMENT.

IN THE UNITED STATES PATENT OFFICE.

In the Application of BARTON HAXALL COFF-
FEY, Elizabeth, New Jersey.

DEVICE FOR COOLING LIQUIDS.

Filed May 24, 1911.

Serial No. 629,214.

Division 32.

Room 278.

West Street Building.

90 West Street,

New York City, N. Y.

July 7, 1911.

Honorable Commissioner of Patents,
Washington, D. C.

Sir:

We beg leave to amend the above-entitled appli-
cation as follows:

In line 13 of page 2, "one" should be cancelled
and in line 14, "drawing" should be pluralized.

Page 2, line 22, before "section" insert cross;

line 24, before "section" insert longitudinal; line
29, "brot" should be brought; line 39 before
"splined" insert loosely.

At end of sentence ending on line 3, page 3, add
and are not secured together. Page 3, after sen-
tence ending on line 8, insert:

A' The object of this construction is to prevent loss
of water due to windage and to confine the water
within the limits of the tower. It will be obvious
that no metallic fastenings are exposed and with
this form of construction an interlocking system
is offered which is easily and cheaply constructed.

Line 13, insert my before "invention."

CLAIM 1, line 2, after the first "bars" insert mounted in a frame; after the last "bars" insert separately fastened to the frame at each end. Line 3, "being" should be and loosely.

CLAIM 2, line 2, after "bars" insert separately framed to a member on each end. Line 3, insert loose after "short"; "connecting" should be between.

CLAIM 3, line 4, before "splined" insert loosely.

CLAIM 5, line 4, after "being" insert loosely.

Add ~~claim~~ 6. In a device of the class described, a deck consisting of drip bars individually fastened at each end, ^{to a frame} the adjacent bars being loosely splined together at intervals throughout the length, the outer ^{portion} ~~portion~~ of the deck being splined solid. *Sigo*

REMARKS: This amendment is in response to office action of date June 24, 1911. A careful review of the references cited was made and after a personal interview with the Examiner, on July 8, 1911, the above amendment is submitted, believing that the claims, as now drawn, cannot be construed to read upon the structures shown in the various references.

In all the references the bars are fastened together by through bolts and with special constructions, which in detail are not the same in any particular with the detail of the deck employed in the cooling tower shown in this application. The applicant does not contend that he has invented the splining together of the bars, for that is old, but he does contend that his cooling tower embodies patentable features as now described and covered by the claims and he believes that the case is in condition for allowance which is earnestly solicited.

Respectfully submitted,

BATTON HIXALL COPPEY,
by *Edw. Brachink*
His Attorney - 17 - 1st



U. S. Patent Office,
Aug. 3, 1911.
Mailed.

86

Div. 32	Room 278	Paper No. 4.
Address only	All communications respecting this	
"The Commissioner of Patents, Washington, D. C."	application should give the serial number, date of filing, and title of invention.	

2—260.

B.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.
Washington.

Aug. 3, 1911.

Barton H. Coffey,
c/o Edward Van Winkle,
#90 West Street, New York, N. Y.

Please find below a communication from the EX-AMINER in charge of your application, for "De-vice for Cooling Liquids" filed May 24, 1911. Serial No. 629,214.

E. B. MOORE,
Commissioner of Patents.

Amendment filed July 8, 1911, has been incorpo-rated.

In line 8 of page 2 "brot" should read brought, in line 14 "sheet" should be pluralized.

In line 3 of page 3, the word rigidly should be inserted before "secured," in line 8, same page, and in line 2 of claim 1, the word "grillage" should be changed to read drip to be in accord with the remainder of the description and claims.

In line 3, claim 2, and should be inserted before "short." Owing to the much amended condition of claims 1 and 2, they should be rewritten upon a separate sheet of paper.

In line 3, of claim 6, presented by the amendment, to a frame should be inserted after "end"; and in line 4, "position" should be portion.

Subject to the objections above noted claims 1, 2, 3, 5 and 6 may be allowed as at present advised.

Claim 4 stands allowed.

JAY F. BANCROFT,
Examiner.

M. B. G.

629214—13

Mail Room.

Aug. 5, 1911.

U. S. Patent Office.

U. S. Patent Office.

Aug. 8, 1911.

Division XXXII.

4176

Paper #5, 2 sheets.

Aug. 7, 1911.

Division 6.

Serial No. 629,214, Paper No. 5.

Amendment B.

Filed Aug. 5, 1911.

AMENDMENT.

IN THE UNITED STATES PATENT OFFICE.

In the Application of BARTON HAXALL COFFEEY, Elizabeth, New Jersey.

Device for Cooling Liquids.

Filed May 24, 1911.

Serial No. 629,214.

Division 32,

Room 278.

West Street Building,
90 West Street,
New York City, N. Y.
August 4, 1911.

Honorable Commissioner of Patents,
Washington, D. C.

Sir:

We beg leave to amend the above-entitled application as follows:

In line 8 of page 3 "brot" should read brought,
in line 14 "sheet" should be pluralized.

In line 3, of page 3, the word rigidly should be
inserted before "secured," in line 8, same page, and
in line 2 of claim 1, the word "grillage" should
be changed to read drip.

In line 3, claim 2, and should be inserted before
"short."

In line 3, of claim 6, presented by the amendment,
to a frame should be inserted after "and"; and in
line 4, "position" should be portion.

Claims 1 and 2 are rewritten below, owing to the
much amended condition of the claim and to insure
perfect understanding.

-1-

629214—14

4177

1. In a device of the class described a deck consisting of drip bars mounted in a frame, the adjacent bars separately fastened to the frame at each end, and loosely splined together at intervals throughout their entire length.

2. In a device of the class described a deck consisting of parallel drip bars separately framed to a member on each end with space in between the bars, and short loose splines between the bars at intervals.

REMARKS: This amendment is made in re-
sponse to office action of date of August 3d, 1911.
It will be noted that all of the examiner's objections
have been accepted, and in view of this fact it is

respectfully requested that the case be immediately passed to issue.

Respectfully submitted,
BARTON HAXALL COFFEY,
By EDWD. VAN WINKLE,
Attorney-in-fact.

-2-

629214-15

Serial No. 629,214

Address only
The Commissioner of Patents,
Washington, D. C.

2-181.

TBM.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.
Washington.

Oct. 7, 1911.

Barton H. Coffey,
c/o Edward Van Winkle,
New York, N. Y.

Sir: Your APPLICATION for a patent for an
IMPROVEMENT in
Device for Cooling Liquids,
filed May 24, 1911, has been examined and AL-
LOWED.

The final fee, TWENTY DOLLARS, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period the patent on this application will be withheld, unless renewed with an additional fee of \$15, under the provisions of Section 4897, Revised Statutes.

Uncertified Checks Will Not Be Accepted.

In Remitting the Final Fee Give the Serial Number at the Head of This Notice.

The office delivers patents upon the day of their date, and on which their term begins to run. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will require about four weeks, and such work will not be undertaken until after payment of the necessary fee.

When you send the final fee you will also send, **DISTINCTLY AND PLAINLY WRITTEN**, the name of the **INVENTOR** and **TITLE OF INVENTION AS ABOVE GIVEN**, **DATE OF ALLOWANCE** (which is the date of this circular), **DATE OF FILING**, and, if assigned, the **NAMES OF THE ASSIGNEES**.

If you desire to have the patent issue to **ASSIGNEES**, an assignment containing a **REQUEST** to that effect, together with the **FEE** for recording the same, must be filed in this office on or before the date of payment of final fee.

After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of **FIVE CENTS EACH**. The money should accompany the order. Postage stamps will not be received.

Final fees will **NOT** be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

Respectfully,

E. B. MOORE,
Commissioner of Patents.

2—103.

\$20 received as the final fee in the application of B. H. Coffey, Serial No. 629214, for Device for cooling liquids, applied from a composite letter No. 203107 received Oct. 28, 1911, from E. Van Winkle, which is on file in the Chief Clerk's room.

B/M. R.

W. W. MORTIMER,
Chief of Issue and Gazette Division.

J. N.

629214—17.

Patent

Nov. 28, 1911

Will Issue

Address only
"The Commissioner of Patents,
Washington, D. C."

2—191.

TBM Serial No. 629,214
DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington.

Nov. 2, 1911.

Barton H. Coffey, Assor.,
c/o Edward Van Winkle,
New York, N. Y.

Sir:

You are informed that the final fee of TWENTY DOLLARS has been received in your application for Improvement in Device for Cooling Liquids.

Date of receipt Oct. 28, 1911.

Very respectfully

E. B. MOORE,
Commissioner of Patents.

629214—18

Mail Room

Dec. 19, 1922

U. S. Patent Office

In the Southern Division of the United States District Court in and for the Northern District of California, Second Division.

Honorable Commissioner of Patents,
Washington, D. C.

Sir:

In compliance with the Act of February 18, 1922 (41 Stat. L. —), you are advised that there was filed on the 22d day of December, 1922, in this court an action, suit, or proceeding No. 923—Eq., entitled: Name—COOLING TOWER COMPANY, Inc., a corporation, Plaintiff,

Address—City of New York, State of New York,
versus

Name—C. F. BRAUN & CO., a corporation, Defendant,

Address—San Francisco, California,
brought upon the following patents:

Patent No.	Date of Patent.	Patentee.
1. 1,010,020	November 28, 1911.	Barton H. Coffey,
2.	assignor to Mitch-
3.	ell-Tappen Com-
4.	pany, and by said
5.	assignee assigned to Cooling Tower Company, Inc.

In the above-entitled case, on the — day of —, 192—, the following patents have been included by — (insert amendment, answer, cross bill, or other pleading):

Patent No.	Date of Patent.	Patentee.
1
2
3
4
5

In the above-entitled case the following decision has been rendered or decree issued:

.....
.....

IN WITNESS WHEREOF I have affixed my hand this 22d day of December, 1922, at San Francisco, California.

[Seal]

WALTER B. MALING,

Clerk of Said Court.

By J. A. Schaertzer,

Deputy Clerk.

B. H. COFFEY.
DEVICE FOR COOLING LIQUIDS.
APPLICATION FILED MAY 24, 1911.

1,010,020.

Patented Nov. 28, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

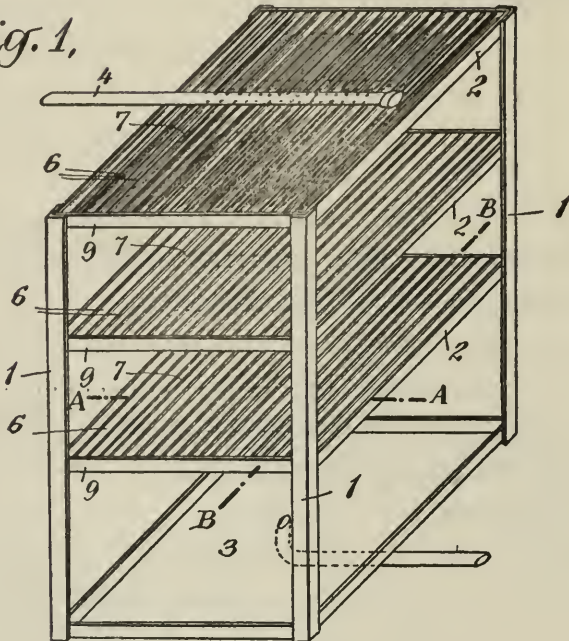


Fig. 2.



Fig. 3.



WITNESSES:

M. M. Faucher
Marie C. ...

INVENTOR

Barton H. Coffey

BY
Edw. Paulin

B. H. COFFEY.
DEVICE FOR COOLING LIQUIDS.
APPLICATION FILED MAY 24, 1911.

1,010,020.

Patented Nov. 28, 1911.

2 SHEETS-SHEET 2

Fig. 4,

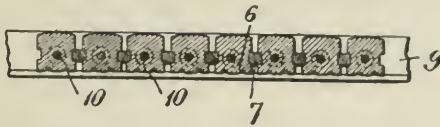


Fig. 5,

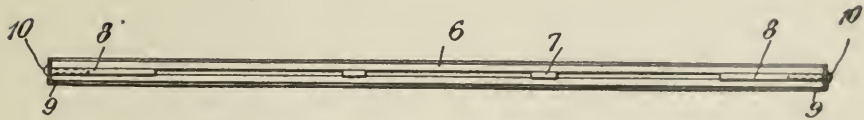
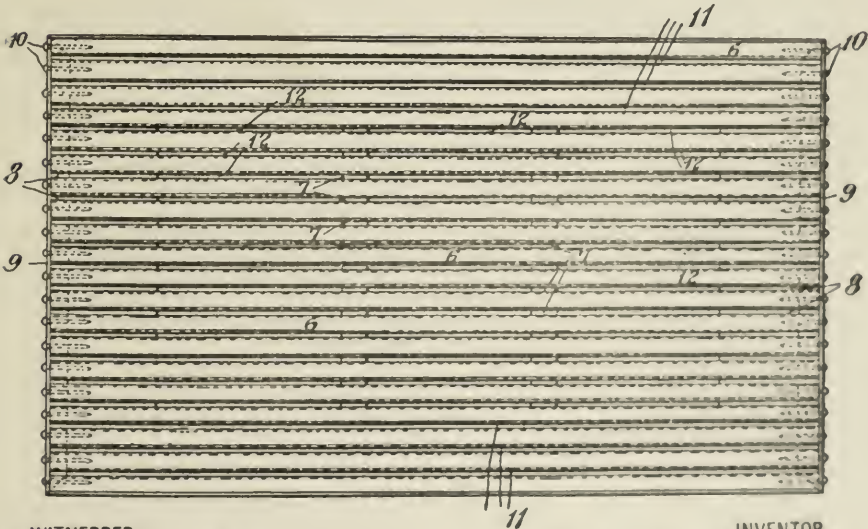


Fig. 6,



WITNESSES:

M. M. Sanchez
Marie C. D. San

INVENTOR

Barton H. Coffey

BY
Edw. D. Baulin
ATTORNEY

UNITED STATES PATENT OFFICE.

BARTON H. COFFEY, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE
MITCHELL-TAPPEN COMPANY, OF NEW YORK, N. Y.,
A CORPORATION OF NEW YORK.

DEVICE FOR COOLING LIQUIDS.

1,010,020.

Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed May 24, 1911. Serial No. 629,214.

To all whom it may concern:

Be it known that I, Barton H. Coffey, residing in Elizabeth, Union County, State of New Jersey, have invented certain new and useful Improvements in Devices for Cooling Liquids, of which the following is a specification.

My invention relates to improvements for cooling liquids by natural aeration and evaporation, caused by separating in small drops or streams which are then brought into contact with the air; and more particularly confined to an improved construction of drip decks used for separating the liquid into drops.

The foregoing and other features of my invention will now be described in connection with the accompanying sheets of drawings, forming a part of this specification, in which I have represented the device in its preferred form, after which I shall point out more particularly, in the claims, those features which I believe to be new and of my own invention.

Figure 1 is a perspective view of my cooling tower. Fig. 2 is a section of the drip bars employed by me. Fig. 3 is a modification of the drip bars shown in Fig. 2. Fig. 4 is a cross section, A—A Fig. 1, of the drip deck employed, showing fastening pins 10 at the end of each bar. Fig. 5 is a longitudinal section, B—B Fig. 1, of the drip deck showing its fastenings on the ends to the general frame-work 9. Fig. 6 is a plan of each deck.

The frame-work of my tower consists of uprights 1 with decks 2 and collecting pan or tank 3 at the bottom. The liquid to be cooled is brought to the supply pipe 4 and distributed over the top deck in any manner familiar to cooling towers. The decks are formed of drip bars 6 which may be of any desired shape and are loosely splined together with splines 7, said splines being shorter than the length of the bar; on each end of these bars splines 8, longer than splines 7, connect the bars together. The bars are each individually held to the horizontal frame-work 9 by screws or dowels 10, and are not rigidly secured together. The outer members are splined together with continuous splines 11. It will, therefore, be readily understood that each deck is built up of certain portions all around the

edge of the tower, the middle portion being open, as at 12, between the short splines 7 and the drip bars 6. The object of this construction is to prevent loss of water due to windage and to confine the water within the limits of the tower. It will be obvious that no metallic fastenings are exposed and with this form of construction an interlocking system is offered which is easily and cheaply constructed.

While I do not limit myself to the bars shown in section in Figs. 2 and 3, these bars are in the preferred forms and any deviation in shape may be made without departing from the salient features of my invention and I intend the claims to cover all such modifications as naturally fall within the lines of my invention.

The operation of my device is as follows: The liquid to be cooled is discharged and distributed over the top of the tower by means of the supply pipe 4 which will then drip through the spaces 12 on to the deck below and will in this manner pass through the successive decks of the series to the collecting pan 3.

Having thus fully described my invention, what I desire to secure by Letters Patent of the United States is:

1. In a device of the class described a deck consisting of drip bars mounted in a frame, the adjacent bars separately fastened to the frame at each end, and loosely splined together at intervals throughout their entire length.

2. In a device of the class described a deck consisting of parallel drip bars separately framed to a member on each end with space in between the bars, and short loose splines between the bars at intervals.

3. In a device of the class described a deck consisting of drip bars securely fastened at each end, with space in between the bars, the adjacent bars being loosely splined together at intervals throughout their entire length.

4. A drip bar of a rectangular section having a curved top, two grooves on the bottom and a groove on each of the vertical sides.

5. In a device of the class described a deck consisting of drip bars individually fastened at each end, with space in between the bars, the adjacent bars being loosely splined together at intervals throughout their entire length.

2

1,010,020

6. In a device of the class described, a deck consisting of drip bars individually fastened at each end to a frame, the adjacent bars being loosely splined together at intervals throughout the length, the outer portion of the deck being splined solid.

This specification signed and witnessed, at

room 1312, West Street Bldg., in the city of
New York, this 23d day of May A. D., 1911.

BARTON H. COFFEY.

In the presence of—

EDWD. VAN WINKLE,

MARIE E. McLEAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

10-28-11

Refrigeration
Beer-Cooler

2-421.

1911.

CONTENTS:

Print May 24/11.

- 1. Application papers. O. K.
- 2. Rejection, June 24, 1911.
- 3. Amdt. A, July 8, 1911.
- 4. Letter, Aug. 3, 1911.
- 5. Amdt. B, Aug. 5, 1911.
- 6. Notice of Suit Dec. 29-22
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In the Southern Division of the United States District Court Northern District of California, Second Division.

No. 923.

COOLING TOWER COMPANY, INC.,

Plaintiff,

vs.

C. F. BRAUN & CO. (a Corporation),

Defendant.

AFFIDAVIT OF CHAS. MOSER.

State of California,

City of County of San Francisco,—ss.

Chas. Moser, being first duly sworn, deposes and says as follows:

(1) I live in the city of Palo Alto, county of Santa Clara, State of California. I am a civil engineer by profession and am instructor in Mechanics of Materials in the Stanford University, which position I have held for approximately fourteen years. My duties include the charge of the laboratory for the testing of materials and structures of various kinds. I also give the lectures in the course known as "Mechanics of Materials." The problems I am called upon to consider in connection with my work relate to the internal stresses, the deformations and stability of the various elements of structures subjected to loads.

(2) My technical training and experience as an engineer may be stated as follows: I am a graduate of Stanford University, graduating in 1908. I was for two years connected with the Commissioner of Engineers for the reconstruction of the Stanford University after the 1906 earthquake, and since that time I have held a position on the teaching staff of Stanford University and for six months each year I am in daily contact with structural problems. At various times I have been called in consultation on various engineering projects. With other work I designed the framing details and inspected the erection of a steel mast 626 feet in height located near Palo Alto, California, and now used by the Federal Telegraph Company.

I am a member of the American Society of Civil Engineers and the American Society for Testing Materials.

(3) My attention has been called to the illustration of cooling tower shown in the catalog of B. Franklin Hart, Jr. & Co., Defendant's Exhibit 15; also to the construction of cooling tower shown in the catalog of the Plaintiff, Cooling Tower Company, Exhibit 21, Cut No. 14, appearing on the page indicated as Sec. A—Page 1, and to Defendant's Model G and to the model Defendant's Exhibit "D," illustrating the defendant's tower construction; and I understand the construction of the said several towers illustrated in said publications and models. The construction shown in said Hart Catalog is, as far as apparent from the very meager and indistinct disclosure of said cut, substantially

identical with the construction shown in the patent to B. F. Hart, Jr., entitled *Cooling Tower*, numbered 1,228,207, May 29, 1917. In this Hart catalog appears to be shown the same double deck arrangement that appears in the Hart patent mentioned, in which double decks are indicated by the reference characters 20, more clearly shown in Fig. 2. The louvers shown in Hart are numbered 25 in the patent and the horizontal tie members which appear to extend out from the vertical columns of the Hart Catalog structure apparently correspond to the horizontal tie bars 22 of the Hart patent mentioned. There is nothing to indicate in the Hart catalog that these horizontal ties, to which I will give the reference character 22, are in any sense an extension or continuation of the horizontal joists or deck supports which carry the decks. It will therefore be assumed that the showing in the Hart cooling tower corresponds substantially to the showing in said Hart patent No. 1,228,207. Reference is hereby made as a part hereof to Model marked Moser A, which exemplifies the said Hart construction. Model marked Moser Model B exemplifies the construction illustrated in what may be termed the Plaintiff's tower, illustrated in the blue print No. 59. Moser Model A, at the same time exemplifying the Hart construction, exemplifies the same principle existent in the representation of the Plaintiff's cooling tower exhibited in Model Exhibit "G." Either model Moser A or B accurately represents the essential structural elements of

Plaintiff's towers illustrated in blue print No. 59 and Model G; the structural principles being substantially the same in each.

A third model marked Moser Model C typifies and embodies the construction shown in the Braun patent No. 1,442,784, dated January 16, 1923, and in the Braun Model tower, Defendant's Exhibit "D."

An examination of these models will disclose the fact that Models A and B represent towers of a class in which vertical and horizontal members form the main frame to which are appended accessory louver members which add no strength to the tower structure as more particularly pointed out hereinafter. On the other hand, Model C exemplifies a tower of a different class, in which the vertical and horizontal frame members and the louvers are integral elements of the structure and mutually co-operate in carrying both deck and lateral loads, and give added rigidity to the entire structure.

(4) I understand the functions of the structural members of the towers illustrated by the models in resisting loads, and the stresses that may be developed in said members due to the straining action of loads. The stresses developed in resisting external loads are illustrated in a diagram which I produce and mark Moser D. The reference characters employed in this sketch correspond to the numerals appearing respectively in the Braun patent No. 1,442,784 and the Hart patent 1,288,207. In the diagram of Moser D the effective action of the structural elements of towers of the Braun and of

the Plaintiff and Hart types are indicated; first by showing the deck load and the effect of bending stresses on the horizontal members, and secondly by showing the lateral load and the effect upon the horizontal members when the lateral load is imposed.

Just as model A and B typify interchangeably the principles and action of both Hart and Plaintiff, so does that portion of the stress diagram, Exhibit Moser "D," marked Plaintiff's and Hart type, apply equally to those constructions in contradistinction to the action that takes place in Braun. In each of these towers, Plaintiff's and Hart's, due to the lack of continuity of the horizontal deck member beyond the main vertical portion the louver is an appended structure which does not influence the stress in the main framing members of the tower, except to add load. Therefore, the particular details of the louver construction of these towers are of no consequence with respect to the stability or stress situation of the main supporting frame of the towers.

By comparing the bending stress diagram for deck loads it will be seen that the horizontal members of the Braun tower undergo less stress and strain than the horizontal members of the Hart or Plaintiff's towers. This situation is due to the fact that members 13 in Braun act as tension members to relieve and distribute the stresses in the horizontal members, while in the Hart or Plaintiff's structures members 21 and 22 are idle when the deck load

is applied and do not so relieve the stresses in the horizontal deck supporting member. This situation is more fully explained in paragraph 6.

For lateral loads imparted against the side of the Braun tower the entire beam 11 of Braun and his opposite louver braces 13 will act in resisting the load, while in the Hart-Plaintiff type of tower the structure will be unstable as far as lateral load is concerned.

From the foregoing it will be seen that by the use by Braun of horizontal deck supporting members 11 which extend beyond the posts 10 and are tied thereto by the inclined members 13, the beams will be performing useful work at all times and with less stress than in the Hart-Plaintiff type of tower.

From a structural standpoint both the Hart and the Plaintiff's towers consist of two more or less independent structures, namely the main supporting structure comprising the vertical posts which are marked 10 in the Hart patent mentioned, and the horizontal framing member marked 13, and the accessory structure composed of the inclined members or louvers marked 21, and the horizontal ties marked 22. The panel marked 25 in the Hart patent is included to hold the two bents in proper relation to each other, but forms no essential element of the structure.

In both the Hart and Plaintiff's towers the louvers and horizontal ties are designed solely as wind-brakes and constitute an added load on the main

frame without contributing in any measureable degree to its structural stability. These two portions of the tower do not co-operate in any substantial manner in carrying loads. Thus, in carrying the vertical deck load, the main horizontal framing member 13 is deprived of the assistance which the outstanding horizontal member 22 might have furnished had it been a continuation of the horizontal member 13 instead of being a separate member.

Likewise, the outstanding horizontal member or tie 22 of Hart or Plaintiff can receive no assistance from the main horizontal member 13. Consequently, the field of action of the outstanding horizontal member 22 is very limited and it can support no vertical load except the louver 21 be in place. Therefore, each of the horizontal members 13 and 22 must independently support its own loads.

With respect to a horizontal load as the force of wind which on a cooling tower 20 feet high and 50 feet long amounts to 30,000 pounds, the two portions, either individually or collectively, are without stability. This situation is due to the fact that the main horizontal framing member 13 and the outstanding horizontal member 22 supporting the louver are separate pieces whose end connections at the main vertical posts 10 are incapable of preventing rotation when an actual horizontal working load is applied to the structure against the panels 25.

(5) Referring to the models Moser A and B, I would say that I am aware of the fact that the ends

of the horizontal members 13 and 22 are attached to the main vertical post 10 by either nails, bolts, pins or light brackets and that such attachments provide a joint with some slight degree of rigidity. However, while such joints may be said to be rigid with respect to the thrust of a man's hand or the blow of a carpenter's hammer, they are incapable of resisting the rotating influence of actual working loads and are therefore to be classed as pivoted joints, and in any event the construction of the louver cannot possibly add to the rigidity of the tower as a whole.

(6) In the Braun tower the various structural features as shown in the model Moser C are so designed and arranged as to constitute an integral structure, each element of which (in addition to carrying its own locally imposed loads, as do the like members in the Hart and Plaintiff's towers), is able and does make a substantial contribution toward the stability and efficiency of the structure as a whole, a function entirely lacking in Hart or Plaintiff.

In Braun the main horizontal framing member 11 extends outwardly beyond the main vertical post 10 to form the louver support instead of being cut to a length just sufficient to spike or bolt to the vertical posts 10 and requiring an additional horizontal piece for the louver support.

The continuation of the horizontal framing member 11 without cutting in Braun beyond the post and tying it to the louver, forms a cantilever beam, making it possible for the various members of the

structure to co-operate advantageously in a manner impossible in the Hart or Plaintiff's type of tower.

As previously pointed out the louvers in the Hart and Plaintiff's towers are incapable of contributing in the slightest degree to the stability of the tower against horizontal loads because of the lack of continuity of the horizontal members. Whatever stability the Hart or Plaintiff's towers may have is independent of the louver construction. On the other hand, by combining the horizontal framing member and the horizontal louver member in one unbroken member 11 in the Braun tower a very considerable degree of rigidity is attained which makes it possible to erect a considerable portion of the frame without the addition of any other system of bracing and contributing materially to the stability of the completed tower against horizontal loads.

In the Braun tower the louver is able to make a substantial contribution to the capacity of the main horizontal member 11 in carrying the deck loads. The horizontal member 11 with its continuation beyond the point of support at the post 10 in the Braun tower constitutes what is known as a restrained beam, since the outwardly extending cantilever ends of the member 11 are anchored down by means of the louver member 13.

In the Hart and Plaintiff's towers the horizontal member 13 ends at the points of support at the posts 10, forming what is known as a simple beam.

The deck loads of these members are uniformly distributed throughout their lengths in each case. For the purpose of comparison it will be assumed that the loads are equal for the two beams.

The effect of the restraint in the case of the horizontal member 11 in the Braun tower is to reduce the bending stress in the member very materially. For equal loads the maximum bending stress in the horizontal member 11 of Braun will be one-half of the maximum bending stress in the horizontal member 13 in the Hart or Plaintiff's towers.

The cross sectional dimensions of any structural member are largely determined by the stresses in that member. Since the maximum bending stress in the horizontal member 11 in the Braun tower is one-half of the maximum bending stress in the horizontal member 13 in the Hart and Plaintiff's towers for equal loads, it follows that the horizontal member 11 in the Braun tower may be made much lighter than the horizontal member 13 in the Hart or Plaintiff's towers with equal degrees of safety so far as supporting the deck load is concerned. The relative magnitudes of the stress in the members of the two towers for equal loads are shown graphically on diagram Moser D.

(7) As previously pointed out in Section 4 the stability of towers of the Hart or Plaintiff's type against lateral loads does not involve the details of louver construction. Plaintiff's Model G embodies features which illustrate this fact. Thus, assume the main vertical posts in position and the

interior horizontal deck supports in place. In this condition the structure has no stability due to the fact that the horizontal members merely rest upon brackets attached to the main vertical posts, or are toe-nailed against the posts, affording a connection capable of carrying the vertical loads, but being unstable in the matter of rotation.

In the construction of the louver this feature of weakness is not changed in any manner. The vertical member along the outer extremities of the louvers in Model G serves as a spacing bar to preserve the alignment of the louvers. Neither this vertical member nor any of the louver members in Model G serve to repair the weakness of the main frame, due to cutting the horizontal deck supporting member at the posts. This weakness is overcome in the Braun tower by combining the horizontal deck supports and the members which ties the louver to the main vertical post into one unbroken member 11 (as in Model Moser C) which is capable of exerting its full strength in the way of bending stresses at the main vertical posts.

(8) My attention has also been called to the patent to Schmidt, No. 693,625, February 18, 1902. I have read and understand said patent.

In the said Schmidt tower the lateral bracing of the tower is accomplished solely by inclining the main supporting posts B to form triangles having the foundation of the tower as bases. The horizontal deck supporting members b' extend slightly beyond the inclined posts B to support the upright

louvers E-e, but this connection of the short extensions of the joists b' beyond the inclined posts B in no way has latteral bracing of the tower as in Braun.

The louver E-e, therefore, is not an integral feature of the Schmidt tower with respect to stability, but merely constitutes an added load on the supporting frame of the tower. Further, the horizontal deck member b' acts independently of the louver and its action in carrying deck loads as shown accurately by the stress diagram for the horizontal deck member of the Hart-Plaintiff type shown on Diagram Moser D, in which the bending stresses are two times the bending stresses in Braun.

CHAS. MOSER.

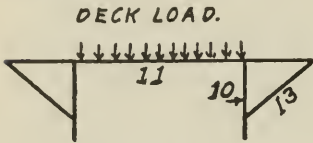
Subscribed and sworn to before me this 28th day of November, 1923.

[Seal]

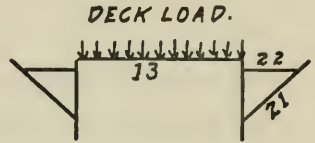
W. W. HEALEY,
Notary Public in and for the City and County of
San Francisco, State of California.

DIAGRAM "MOSER D"
 SHOWING RELATIVE STRESSES
 IN TOWER MEMBERS.

BRAUN TYPE.



PLAINTIFF'S AND HART TYPE.



STRESS DIAGRAMS FOR DECK LOADS.

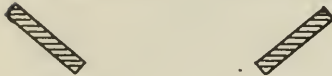
MEMBER 11. BENDING.



MEMBER 13. BENDING.

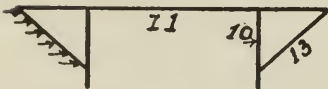


MEMBER 13. TENSION.

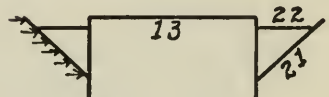


MEMBERS 21 AND 22 ARE IDLE.

LATERAL LOAD.

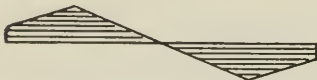


LATERAL LOAD.



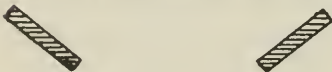
STRESS DIAGRAMS FOR LATERAL LOADS.

MEM. 11. BENDING AND TENSION OR COMPRESSION.



UNSTABLE FOR LATERAL LOAD.

MEM. 13. TENSION OR COMPRESSION.



[Endorsed]: No. 923. In the Southern Division of the United States District Court, Northern District of California, Second Division. Cooling Tower Company, Inc., Plaintiff, vs. C. F. Braun & Co. (a Corporation), Defendant. Affidavit of Chas. Moser. Filed Nov. 30, 1923. Walter B. Maling, Clerk.

No. 4221. United States Circuit Court of Appeals for the Ninth Circuit. Cooling Tower Company, Inc., a Corporation, Appellant and Cross-Appellee, vs. C. F. Braun & Company, a Corporation, Appellee and Cross-Appellant. Affidavit of Chas. Moser. Filed May 8, 1924. F. D. Monckton, Clerk.

